Osmose Wood Preserving Site

a/k/a 980 Ellicott Street Site

ERIE COUNTY
BUFFALO, NEW YORK

SITE MANAGEMENT PLAN

NYSDEC Site Number: 915143

Prepared for:

780 Ellicott Street, LLC
Buffalo, New York

Prepared by:
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Revisions to Final Approved Site Management Plan:

Revision No.	Date Submitted	Summary of Revision	NYSDEC Approval Date
0	July 30, 2019	Initial Site Management Plan	August 5, 2019

CERTIFICATION STATEMENT

I John P. Black, P.E. certify that I am currently a NYS registered professional engineer and that this Site Management Plan was prepared in accordance with all applicable statutes and regulations and in substantial conformance with the DER Technical Guidance for Site Investigation and Remediation (DER-10).

John P. Black P.E.

7.30.2019 DATE

STATE OF NEW YORK
JOHN P. BLACK
No. 062818-1
LICENSED PROFESSIONAL ENGINEER

Osmose Wood Preserving Site

ERIE COUNTY

BUFFALO, NEW YORK

SITE MANAGEMENT PLAN

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(Note: The Geologic Cross Section is presented in Appendix E)

List of Acronyms

AS	Air Sparging
ASP	Analytical Services Protocol
BCA	Brownfield Cleanup Agreement
BCP	Brownfield Cleanup Program
CERCLA	Comprehensive Environmental Response, Compensation and Liability Act
CAMP	Community Air Monitoring Plan
C/D	Construction and Demolition
CFR	Code of Federal Regulation
CLP	Contract Laboratory Program
COC	Certificate of Completion
CO_2	Carbon Dioxide
CP	Commissioner Policy
DER	Division of Environmental Remediation
EC	Engineering Control
ECL	Environmental Conservation Law
ELAP	Environmental Laboratory Approval Program
ERP	Environmental Restoration Program
EWP	Excavation Work Plan
GHG	Green House Gas
GWE&T	Groundwater Extraction and Treatment
HASP	Health and Safety Plan
IC	Institutional Control
NYSDEC	New York State Department of Environmental Conservation
NYSDOH	New York State Department of Health
NYCRR	New York Codes, Rules and Regulations
O&M	Operation and Maintenance
OM&M	Operation, Maintenance and Monitoring
OSHA	Occupational Safety and Health Administration
OU	Operable Unit
PID	Photoionization Detector
PRP	Potentially Responsible Party
PRR	Periodic Review Report
QA/QC	Quality Assurance/Quality Control
QAPP	Quality Assurance Project Plan
RAO	Remedial Action Objective
RAWP	Remedial Action Work Plan
RCRA	Resource Conservation and Recovery Act
RI/FS	Remedial Investigation/Feasibility Study

ROD	Record of Decision
RP	Remedial Party
RSO	Remedial System Optimization
SAC	State Assistance Contract
SCG	Standards, Criteria and Guidelines
SCO	Soil Cleanup Objective
SMP	Site Management Plan
SOP	Standard Operating Procedures
SOW	Statement of Work
SPDES	State Pollutant Discharge Elimination System
SSD	Sub-slab Depressurization
SVE	Soil Vapor Extraction
SVI	Soil Vapor Intrusion
TAL	Target Analyte List
TCL	Target Compound List
TCLP	Toxicity Characteristic Leachate Procedure
USEPA	United States Environmental Protection Agency
UST	Underground Storage Tank
VCA	Voluntary Cleanup Agreement
VCP	Voluntary Cleanup Program

Owner Acronyms

780 Ellicott	780 Ellicott Street, LLC (Current Owner)
LNAPL	Light Non-aqueous Phase Liquid
Osmose	Osmose Realty Inc. (Owner/Operator at time of release)
PAH	Polycyclic aromatic Hydrocarbon
SCL	Selected Cleanup Level
SVOC	Semi-volatile Organic Compound
Site	980 Ellicott Street, Buffalo, New York
VOC	Volatile Organic Compound

ES EXECUTIVE SUMMARY

The following provides a brief summary of the controls implemented for the Site, as well as the inspections, monitoring, maintenance and reporting activities required by this Site Management Plan:

Site Identification:

#915143
Osmose Wood Preserving Site
980 Ellicott Street, Buffalo, New York

Institutional Controls:	1. The property may be used for commercial or industrial uses.
	• The area of the property with any residual contamination may only be used for non- residential use provided that the long-term Institutional Controls included in this SMP are employed. • The property may not be used for a higher level of use, such as restricted residential use without additional remediation and amendment or termination of the Consent Order, as approved by the NYSDEC; • All future activities on the property that will disturb remaining contaminated material must be conducted in accordance with this SMP; • The use of the groundwater underlying the property is prohibited without treatment rendering it safe for intended use; and • The Site owner or remedial party will submit to NYSDEC a written statement that certifies, under penalty of perjury, that: (1) controls employed at the Site are unchanged from the previous certification or that any changes to the controls were approved by the NYSDEC; and, (2) nothing has occurred that impairs the ability of the controls to protect public health and environment or that constitute a violation or failure to comply with the SMP. NYSDEC retains the right to access such Controlled Property at any time in order to evaluate the continued maintenance of any and all controls. This certification shall be submitted annually, or an alternate period of time that NYSDEC may allow and will be made by an expert that the NYSDEC finds acceptable.

Engineering Controls:	1. Cover system - Not Applicable
	2. Groundwater Monitoring

Inspections:	Frequency
1. Not Applicable	
Monitoring:	
1. Groundwater - TCL VOCs (Method 8260), TCL SVOCs (Method 8270) – MW-001, MW-5, MW-11, mw-13, MW-15, MW-17, MW-25, and MW-28	Semi-annual (2 years)
2. Groundwater Depth – MW-001, MW-5, MW-11, MW-13, MW-15, MW-17, MW-25, MW-28, MW-002, MW-24, and RW-1	Semi-annual (2 years)
Maintenance:	
1. Monitoring Wells	As needed
2. Operations	None
Reporting:	
1. Groundwater Data	Annual
2. Periodic Review Report	Annually

Further descriptions of the above requirements are provided in detail in the latter sections of this Site Management Plan.

1.0 INTRODUCTION

1.1 General

This Site Management Plan (SMP) is a required element of the remedial program for the Osmose Wood Preserving Site located in Buffalo, New York (hereinafter referred to as the "Site"). See Figure 1. The Site is currently in the New York State (NYS) Inactive Hazardous Waste Disposal Site Remedial Program Site No. 915143 which is administered by New York State Department of Environmental Conservation (NYSDEC).

780 Ellicott Street, LLC entered into an Order on Consent on August 23, 2017 (Appendix A) with the NYSDEC to complete the monitoring, reporting and document the remediation of the site. A figure showing the site location and boundaries of this site is provided in Figure 1. The boundaries of the site are more fully described in the metes and bounds site description that is part of the Environmental Easement provided in Appendix B.

After completion of the remedial work, some contamination was left at this site, which is hereafter referred to as "remaining contamination". Institutional Controls (ICs) have been incorporated into the site remedy to control exposure to remaining contamination to ensure protection of public health and the environment. The Environmental Easement granted to the NYSDEC, and recorded with the Erie County Clerk on July 29, 2019, requires compliance with this SMP and all ICs placed on the site.

This SMP was prepared to manage remaining contamination at the site until the Environmental Easement is extinguished in accordance with ECL Article 71, Title 36. This plan has been approved by the NYSDEC, and compliance with this plan is required by the grantor of the Environmental Easement and the grantor's successors and assigns. This SMP may only be revised with the approval of the NYSDEC.

It is important to note that:

- This SMP details the site-specific implementation procedures that are required by the Environmental Easement. Failure to properly implement the SMP is a violation of the Environmental Easement, which is grounds for revocation of the Certificate of Completion (COC);
- Failure to comply with this SMP is also a violation of Environmental Conservation Law, 6NYCRR Part 375 and the Order on Consent (Index #R9-20170520-83; Site #915143) for the site, and thereby subject to applicable penalties.

All reports associated with the site can be viewed by contacting the NYSDEC or its successor agency managing environmental issues in New York State. A list of contacts for persons involved with the site is provided in Appendix C of this SMP.

This SMP was prepared by John Black, P.E., on behalf of 780 Ellicott Street, LLC, in accordance with the requirements of the NYSDEC's DER-10 ("Technical Guidance for Site Investigation and Remediation"), dated May 2010, and the guidelines provided by the NYSDEC. This SMP addresses the means for implementing the ICs that are required by the Environmental Easement for the site.

1.2 Revisions

Revisions to this plan will be proposed in writing to the NYSDEC's project manager. Revisions will be necessary upon, but not limited to, the following occurring: a change in media monitoring requirements, upgrades to or shut-down of a remedial system, post-remedial removal of contaminated sediment or soil, or other significant change to the site conditions. In accordance with the Environmental Easement for the site, the NYSDEC will provide a notice of any approved changes to the SMP and append these notices to the SMP that is retained in its files.

1.3 Notifications

Notifications will be submitted by the property owner to the NYSDEC, as needed, in accordance with NYSDEC's DER – 10 for the following reasons:

- 60-day advance notice of any proposed changes in site use that are required under the terms of the Order on Consent, 6NYCRR Part 375 and/or Environmental Conservation Law.
- 7-day advance notice of any field activity associated with the remedial program.
- 15-day advance notice of any proposed ground-intrusive activity pursuant to the Excavation Work Plan (Appendix D).

Any change in the ownership of the site or the responsibility for implementing this SMP will include the following notifications:

- At least 60 days prior to the change, the NYSDEC will be notified in writing of the proposed change. This will include a certification that the prospective purchaser/Remedial Party has been provided with a copy of the Order on Consent, and all approved work plans and reports, including this SMP.
- Within 15 days after the transfer of all or part of the site, the new owner's name, contact representative, and contact information will be confirmed in writing to the NYSDEC.

Table 1 includes contact information for the above notification. The information on this table will be updated as necessary to provide accurate contact information. A full listing of site-related contact information is provided in Appendix C.

Table 1: Notifications*

Name	Contact Information
Chad Staniszewski **NYSDEC** **Regional Hazardous Waste Engineer**	+1 716 851 7220 Chad.Staniszewski@dec.ny.gov
Jaspal Walia **NYSDEC** **Project Manager**	+1 716 851 7220 Jaspal.Walia@dec.ny.gov
Kelly A. Lewandowski, P.E. **NYSDEC** **Site Control**	+1 518-402-9543 kelly.lewandowski@dec.ny.gov

* Note: Notifications are subject to change and will be updated as necessary.

2.0 SUMMARY OF PREVIOUS INVESTIGATIONS AND REMEDIAL ACTIONS

2.1 Site Location and Description

The site is located in Buffalo, Erie County, New York and is identified as Section 100 Block 63.3 and Lot 37 on the Erie County Tax Map (see Figure 1). The site is an approximately 0.5-acre area and is within the larger 980 Ellicott Street Property (see Figure 1 – Site Layout Map). The boundaries of the site are more fully described in Appendix B – Environmental Easement. The owner(s) of the site parcel(s) at the time of issuance of this SMP is/are:

780 Ellicott Street, LLC
333 Ganson Street
Buffalo, New York 14203
Attn: Jon Williams

2.2 Physical Setting

2.2.1 Land Use

The Site consists of the following: a paved parking lot. The Site is zoned industrial and is currently vacant although some limited parking is taking place. Site occupants include only people parking (they only park at the Site, they work off the property). As soon as the SMP and Final Engineering Report are approved, the site will be redeveloped for office and medical laboratory uses. Prior to commercial occupancy, the site will be rezoned to allow commercial use.

The properties adjoining the Site and, in the neighborhood, surrounding the Site primarily include the former Osmose Chemical buildings on the properties immediately surrounding the 0.5-acre site. The properties south of the Site across Best Street include vacant and religious properties; the properties north of the Site (beyond the Osmose buildings) include commercial and residential properties; the properties immediately east of the Site include residential and commercial properties; and the properties to the west of the Site include commercial, vacant and municipal properties.

2.2.2 Geology

The Site geology consists of approximately 60 feet of unconsolidated clay, silt, sand and gravel deposits, which is underlain by the Onondaga limestone bedrock. Fill mixed with silt and clay varies up to 5 feet below ground surface, followed by low permeability silty clay from 7 to 12 feet. This is followed by highly permeable strata of sands and a mix

of sands and gravel down to the bedrock. The bedrock slopes toward the southeast. The groundwater in the overburden flows generally toward the south/southeast.

A geologic cross section is shown in Appendix E. Site specific boring logs made available by Osmose are provided in Appendix E.

2.2.3 Hydrogeology

The depth to groundwater at the site varies across the property and with the seasons. In November of 2017 the depth to groundwater in the monitoring wells and recovery well no. 1 varied between 3.74 to 6.96 feet below the measuring point (all close to ground surface). In February of 2018, the depth to groundwater in the same well array varied from 0.5 to 9 feet.

In general, the groundwater at the site flows east toward Ellicott Street. The flow direction on the property is affected by seasonal changes, largely due to variable precipitation and infiltration distributed non-uniformly due to predominately low permeability covers including the buildings and pavement.

There are no known private or municipal wells in the vicinity of the site.

A groundwater quality map is shown in Figure 3. Groundwater elevation data is provided in Table 2. Groundwater monitoring well construction logs are provided in Appendix F.

2.3 Investigation and Remedial History

The following narrative provides a remedial history timeline and a brief summary of the available project records to document key investigative and remedial milestones for the Site. Full titles for each of the reports referenced below are provided in Section 8.0 - References.

The Site operated as a manufacturing facility from 1951 until approximately May 2015. Manufacturing at the Site included the formulation/production of a variety of preservatives used in treatment of lumber and wood products. According to previous reports, portions of the Site also historically hosted a malt house, carriage works, automotive repair facilities, and residential buildings.

In 1989, leaks were discovered from three (3) underground storage tanks (USTs) located in the parking lot area south of the Site building that were used to store creosote, No. 2 fuel oil, mineral spirits and other hydrocarbons used in the manufacturing process. Upon discovery of the leaks, the tanks were taken out of service, drained and removed from the Site. Impacts to Site soils and groundwater were detected, including the presence of light non-aqueous phase liquid (LNAPL) hydrocarbons on the groundwater table, and

concentrations of semi-volatile compounds (SVOCs) and volatile organic compounds (VOCs) in both the soils and groundwater.

Osmose was notified by the NYSDEC in June 1990 that the Site would be included in the New York State Registry of Inactive Hazardous Waste Disposal Sites and classified as "2a". The Site was assigned Site Number 915143. An environmental contractor was then engaged to prepare a work plan for the investigation of the releases to determine the extent of contamination at the Site.

A Feasibility Study report was submitted to the NYSDEC in December 1995, which recommended source removal, groundwater collection, in situ chemical treatment (ozone injection), and monitoring as the preferred remedial alternative. The Osmose ROD approving the recommended remedial alternative was issued by the NYSDEC in January 1997. As stated in the Osmose ROD, the components of the remedy were as follows:

- Recovery of Light Non-Aqueous Phase Liquids (LNAPL)
- Incineration of LNAPL at an off-Site facility
- Treatment of impacted Site soils with in-situ injection of ozone
- Monitoring of groundwater for compliance
- Monitoring of the sanitary sewer which is located beneath Ellicott Street
- Monitoring of ambient air during treatment activities
- A deed restriction for the property preventing contact with subsurface soils and residential development of the area left with residual contamination

An environmental consultant was engaged to design a treatment system that would encapsulate all applicable standards, criteria, and appropriate environmental and public health guidance requirements identified in the Osmose ROD. A final Remedial Design report was supplied to the NYSDEC in September 1998.

The remedial design was approved and incorporated as part of an Order on Consent (Index # B9-0314-90-01, March 30, 1999) executed between the NYSDEC and Osmose. The design was constructed and completed in early 2000 and operation of the ozone injection system, soil vapor extraction and the LNAPL groundwater collection and recovery system was initiated in 2000.

Semi-annual groundwater monitoring and reporting was conducted at the Site in accordance with requirements of the 1999 Order on Consent, which included reference to applicable groundwater standards and guidance. As part of this semi-annual monitoring, seven monitoring wells were sampled for volatile organic compounds (VOCs) and semi-volatile organic compounds (SVOCs) as specified in the Osmose ROD.

In September 2004, a supplemental soil investigation consisting of eight boreholes and twelve samples was performed on the Site to assess the effectiveness of the ozone injection and SVE treatment systems on the Site soils. In July of 2005, NYSDEC approved

the shutdown of the ozone injection and soil vapor extraction systems based on supplemental September 2004 soil investigation data that documented substantially reduced soil quality impacts.

In 2008, approval was received from the NYSDEC to discontinue the operation of the oil/water separator associated with LNAPL collection and continued with collection and activated carbon treatment of Site groundwater.

On August 26, 2015, Osmose received approval from the NYSDEC, subject to completion of certain conditions, for the shut down and decommissioning of the Site groundwater collection and treatment system.

In November 2016 the site and surrounding Osmose property was sold to 780 Ellicott street, LLC. The NYSDEC and 780 Ellicott entered into discussions to agree to an Order on Consent and Administrative Settlement, the 2017 Order went into effect August 23, 2017 (the "2017 Order", Appendix A). The Site classification has been updated to 4.

2.4 Remedial Action Objectives

The Remedial Action Objectives (RAOs) for the Site as listed in the Record of Decision dated January 8, 1997 are as follows:

Groundwater RAOs

RAOs for Public Health Protection

- Prevent ingestion of groundwater containing contaminant levels exceeding drinking water standards.
- Prevent contact with, or inhalation of, volatiles emanating from contaminated groundwater.
- Eliminate the potential for direct human or animal contact with the contaminated soils, LNAPL, and groundwater on-site.

RAOs for Environmental Protection

- Restore ground water aquifer, to the extent practicable, to pre-disposal/pre-release conditions.
- Prevent the discharge of contaminants to surface water.
- Remove the source of ground or surface water contamination.
- Mitigate the impacts of contaminated groundwater and LNAPL to the environment.
- Prevent, to the extent practicable, migration of contaminants from the site.

- Provide for attainment of SCGs for groundwater quality at the limits of the area of concern (i.e. Compliance Wells), to the extent practicable.

Soil RAOs

RAOs for Public Health Protection

- Prevent ingestion/direct contact with contaminated soil.
- Prevent inhalation of, or exposure to, contaminants volatilizing from contaminated soil.
- Eliminate the potential for direct human or animal contact with the contaminated soils, LNAPL, and groundwater on-site.

RAOs for Environmental Protection

- Prevent migration of contaminants that would result in groundwater or surface water contamination.
- Prevent impacts to biota due to ingestion/direct contact with contaminated soil that would cause toxicity or bioaccumulation through the terrestrial food chain.
- Prevent, to the extent practicable, migration of contaminants from the site.

Surface Water – Not Applicable
Sediment – Not Applicable
Soil Vapor – None Given

2.5 Remaining Contamination

The primary media of concern associated with this site is groundwater. While no known exceedances of soil criteria are known, all excavations at the site should include compliance with the attached excavation work plan (Appendix D) and all soils excavated at the site should be managed properly and if required, disposed in a permitted offsite landfill.

2.5.1 Soil

After completion of the IRMs and the Remedy contained in the Osmose ROD, there are no areas of the Site where the concentrations of remaining contamination in the subgrade soils exceed the Osmose ROD "Selected Cleanup Levels" (SCLs) for SVOCs (total polycyclic aromatic hydrocarbons [PAHs], carcinogenic PAHs and benzo(a)pyrene) and total VOCs (benzene, toluene ethylbenzene and xylenes).

Although there are no known areas of exceedances on the property, 780 Ellicott believes it is prudent to manage all soils encountered in utility or redevelopment excavations in accordance with the attached excavation work plan (Appendix D).

2.5.2 Sediment – Not Applicable

2.5.3 Groundwater

Table 2 presents the results of the four most recent annual groundwater monitoring events and the remaining groundwater contamination. The monitoring data indicates that low level exceedances of either New York Ground Water Quality Standards (NYGWQs), or Osmose ROD constituent-specific groundwater quality Remediation Goals, based on NYSDEC's Technical and Operation Guidance Series for Ambient Water Quality Standards And Guidance Values And Groundwater Effluent Limitations [TOGs 1.1.1, June, 1998], have been detected for several PAHs, and one volatile organic compound (VOC) in the monitoring well samples, over the past six (6) years.

As noted in Table 2, the results for many of these constituents have been consistently below the Osmose ROD's Remediation Goals (see Table 3 of the Osmose ROD) with the slight exception of a small number of constituent concentrations which have been fluctuating in a narrow range (e.g. one year a constituent may be non-detect, while the next, is present at a concentration slightly above its respective Remediation Goal). And while the number of constituents detected, and the wells they have been detected at concentrations above the Remediation Goals may vary from year to year, the overall results have shown that the concentration fluctuation is within a very low concentration range (especially when considering the urban environment and potential off-Site environmental factors) and has remained relatively consistent over the past six (6) years.

Table 3 and Figure 4 summarize the results of all samples of groundwater that exceed the SCGs after completion of the remedial action.

2.5.4 Surface Water – Not Applicable

2.5.5 Soil Vapor – Not Applicable

3.0 INSTITUTIONAL CONTROL PLAN

3.1 General

Since remaining contamination exists at the site, Institutional Controls (ICs) are required to protect human health and the environment. This IC Plan describes the procedures for the implementation and management of all ICs at the site. The IC Plan is one component of the SMP and is subject to revision by the NYSDEC.

This plan provides:

- A description of all ICs on the site;
- The basic implementation and intended role of each IC;
- A description of the key components of the ICs set forth in the Environmental Easement;
- A description of the controls to be evaluated during each required inspection and periodic review;
- A description of plans and procedures to be followed for implementation of ICs, such as the implementation of the Excavation Work Plan (EWP) (as provided in Appendix D) for the proper handling of remaining contamination that may be disturbed during maintenance or redevelopment work on the site; and
- Any other provisions necessary to identify or establish methods for implementing the ICs required by the site remedy, as determined by the NYSDEC.

3.2 Institutional Controls

A series of ICs is required by the ROD to: (1) implement, maintain and monitor Engineering Control systems; (2) prevent future exposure to remaining contamination; and, (3) limit the use and development of the site to commercial and industrial uses only. Adherence to these ICs on the site is required by the Environmental Easement and will be implemented under this SMP. ICs identified in the Environmental Easement may not be discontinued without an amendment to or extinguishment of the Environmental Easement. The IC boundaries are shown on Figure 1. These ICs are:

- The property may be used for: commercial or industrial use. Prior to commercial occupancy, the site will be rezoned to allow commercial use;
- All ECs must be operated and maintained as specified in this SMP;
- All ECs must be inspected at a frequency and in a manner defined in the SMP.
- The use of groundwater underlying the property is prohibited without necessary water quality treatment as determined by the NYSDOH or the Erie County Department of Health to render it safe for use as drinking water or for industrial

purposes, and the user must first notify and obtain written approval to do so from the Department.

- Groundwater and other environmental or public health monitoring must be performed as defined in this SMP;
- Data and information pertinent to site management must be reported at the frequency and in a manner as defined in this SMP;
- Monitoring to assess the performance and effectiveness of the remedy must be performed as defined in this SMP;
- Operation, maintenance, monitoring, inspection, and reporting of any mechanical or physical component of the remedy shall be performed as defined in this SMP;
- Access to the site must be provided to agents, employees or other representatives of the State of New York with reasonable prior notice to the property owner to assure compliance with the restrictions identified by the Environmental Easement.
- The potential for vapor intrusion must be evaluated for any buildings developed in the area within the IC boundaries noted on Figure [x], and any potential impacts that are identified must be monitored or mitigated; and
- Vegetable gardens and farming on the site are prohibited;

3.2.1 - Monitoring Wells associated with Monitored Natural Attenuation

Groundwater monitoring activities to assess natural attenuation will continue, as determined by the NYSDEC with consultation with NYSDOH, until residual groundwater concentrations are found to be consistently below ambient water quality standards, the site SCGs, or have become asymptotic at an acceptable level over an extended period. In the event that monitoring data indicates that monitoring for natural attenuation may no longer be required, a proposal to discontinue the system will be submitted by the remedial party. Monitoring will continue until permission to discontinue is granted in writing by the NYSDEC. If groundwater contaminant levels become asymptotic at a level that is not acceptable to the NYSDEC, additional source removal, treatment and/or control measures will be evaluated.

4.0 MONITORING AND SAMPLING PLAN

4.1 General

This Monitoring and Sampling Plan describes the measures for evaluating the overall performance and effectiveness of the remedy. This Monitoring and Sampling Plan may only be revised with the approval of the NYSDEC. Details regarding the sampling procedures, data quality usability objectives, analytical methods, etc. for all samples collected as part of site management for the site are included in the Quality Assurance Project Plan provided in Appendix G.

This Monitoring and Sampling Plan describes the methods to be used for:

- Sampling and analysis of all groundwater;
- Assessing compliance with applicable NYSDEC standards, criteria and guidance (SCGs), particularly groundwater standards; and
- Evaluating site information periodically to confirm that the remedy continues to be effective in protecting public health and the environment;

To adequately address these issues, this Monitoring and Sampling Plan provides information on:

- Sampling locations, protocol and frequency;
- Information on all designed monitoring systems;
- Analytical sampling program requirements;
- Inspection and maintenance requirements for monitoring wells;
- Monitoring well decommissioning procedures; and
- Annual inspection and periodic certification.

Reporting requirements are provided in Section 7.0 of this SMP.

4.2 Site – wide Inspection

Site-wide inspections will be performed at a minimum of once per year. Modification to the frequency or duration of the inspections will require approval from the NYSDEC. Site-wide inspections will also be performed after all severe weather conditions that may affect monitoring wells. During these inspections, an inspection form will be completed as provided in Appendix H – Site Management Forms. The form will compile sufficient information to assess the following:

- Compliance with all ICs, including site usage;
- General site conditions at the time of the inspection;
- The site management activities being conducted including, where appropriate, confirmation sampling and a health and safety inspection; and
- Confirm that site records are up to date.

Inspections of all remedial components installed at the site will be conducted. A comprehensive site-wide inspection will be conducted and documented according to the SMP schedule, regardless of the frequency of the Periodic Review Report. The inspections will determine and document the following:

- If these controls continue to be protective of human health and the environment;
- Compliance with requirements of this SMP and the Environmental Easement;
- Achievement of remedial performance criteria; and
- If site records are complete and up to date; and

Reporting requirements are outlined in Section 7.0 of this plan.

Inspections will also be performed in the event of an emergency. If an emergency, such as a natural disaster that reduces or has the potential to reduce the effectiveness of ICs in place at the site, verbal notice to the NYSDEC must be given by noon of the following day. In addition, an inspection of the site will be conducted within 5 days of the event to verify the effectiveness of the ICs implemented at the site by a qualified environmental professional, as determined by the NYSDEC. Written confirmation must be provided to the NYSDEC within 7 days of the event that includes a summary of actions taken, or to be taken, and the potential impact to the environment and the public.

4.3 Treatment System Monitoring and Sampling - Not Applicable

4.4 Post-Remediation Media Monitoring and Sampling

Samples shall be collected from the groundwater on a routine basis. Sampling locations, required analytical parameters and schedule are provided in Table 4 – Remedial System Sampling Requirements and Schedule below. Modification to the frequency or sampling requirements will require approval from the NYSDEC.

Table 4 – Post Remediation Sampling Requirements and Schedule

Sampling Location	Analytical Parameters[1]				Schedule
	VOCs (EPA Method 8260)	SVOCs (EPA Method 8270)	Field parameters (pH, D.O.)	Depth to liquid, presence of NAPL)	
Monitoring Well #MW-001	X	X	X	X	Semi-annual
Monitoring Well #MW-5	X	X	X	X	Semi-annual
Monitoring Well #MW-11	X	X	X	X	Semi-annual
Monitoring Well #MW-13	X	X	X	X	Semi-annual
Monitoring Well #MW-15	X	X	X	X	Semi-annual
Monitoring Well #MW-17	X	X	X	X	Semi-annual
Monitoring Well #MW-25	X	X	X	X	Semi-annual
Monitoring Well #MW-28	X	X	X	X	Semi-annual
Monitoring Well #MW-002			X	X	Semi-annual
Monitoring Well #MW-24			X	X	Semi-annual
Former Recovery Well #RW-1			X	X	Semi-annual

Detailed sample collection and analytical procedures and protocols are provided in Appendix I – Field Activities Plan and Appendix G – Quality Assurance Project Plan.

[1] The May 2018 sampling event included collection and testing for 1,4-dioxane and Polyfluoroalkyl Substances (PFAS).

4.4.1 Soil Sampling - Not Applicable

4.4.2 Sediment Sampling - Not Applicable

4.4.3 Groundwater Sampling

Groundwater monitoring will be performed semi-annually for two years to assess the performance of the remedy. Modification to the frequency or sampling requirements will require approval from the NYSDEC.

The network of monitoring wells has been installed to monitor upgradient, on-site and downgradient groundwater conditions at the site. The network of on-site and off-site wells has been designed based on the following criteria:

Table 5 summarizes the wells identification number, as well as the purpose, location, depths, diameter and screened intervals of the wells. As part of the groundwater monitoring program, 2 upgradient wells, 3 on-site wells and 6 downgradient wells are gauged and/or sampled to evaluate the effectiveness of the remedial system.

Table 5 – Monitoring Well Construction Details

Monitoring Well ID	Well Location	Coordinates (longitude/ latitude)	Well Diameter (inches)	Elevation (above mean sea level)			
				Casing	Surface	Screen Top	Screen Bottom
MW-001	On-site	42.9047N, 78.8660W	4	640.03	640.16	623.42	618.42
MW-002	Upgradient	42.9046N, 78.8662W	2	641.01	641.09	637.79	632.79
MW-5	On-site	42.9047N, 78.8668W	2	640.62	640.80	637.62	622.62
MW-11	Downgradient	42.9045N, 78.8658W	2	639.72	640.09	630.72	622.72
MW-13	Downgradient	42.9047N, 78.8659W	2	639.90	640.31	638.23	628.23

MW-15	Downgradient	42.9046N, 78.8660W	2	639.52	640.11	635.11	625.11
MW-17	Downgradient	42.9048N, 78.8659W	2	639.75	640.14	635.14	625.14
MW-24	Upgradient	42.9048N, 78.8664W	2	640.58	641.28	638.28	626.28
MW-25	Downgradient	42.9047N, 78.8664W	2	639.42	639.50	635.50	630.50
MW-28	Downgradient	42.9050N, 78.8657W	2	639.96	640.19	636.92	626.92
RW-1	On-site	42.9047N, 78.8660W	6	640.20	640.69	627.90	617.90

Monitoring well construction logs are included in Appendix F of this document.

If biofouling or silt accumulation occurs in the on-site and/or off-site monitoring wells, the wells will be physically agitated/surged and redeveloped. Additionally, monitoring wells will be properly decommissioned and replaced, if an event renders the wells unusable.

Repairs and/or replacement of wells in the monitoring well network will be performed based on assessments of structural integrity and overall performance.

The NYSDEC will be notified prior to any repair or decommissioning of any monitoring well for the purpose of replacement, and the repair or decommissioning and replacement process will be documented in the subsequent Periodic Review Report. Well decommissioning without replacement will be done only with the prior approval of the NYSDEC. Well abandonment will be performed in accordance with NYSDEC's guidance entitled "CP-43: Groundwater Monitoring Well Decommissioning Procedures." Monitoring wells that are decommissioned because they have been rendered unusable will be replaced in kind in the nearest available location, unless otherwise approved by the NYSDEC.

The sampling frequency may only be modified with the approval of the NYSDEC. This SMP will be modified to reflect changes in sampling plans approved by the NYSDEC.

Deliverables for the groundwater monitoring program are specified in Section 7.0 – Reporting Requirements.

4.4.4 Surface Water Sampling - Not Applicable

4.4.5 Soil Vapor Sampling - Not Applicable

4.4.6 Soil Vapor Intrusion Sampling - Not Applicable

4.4.7 Monitoring and Sampling Protocol

All sampling activities will be recorded in a field book and associated sampling log as provided in Appendix H - Site Management Forms. Other observations (e.g., groundwater monitoring well integrity, etc.) will be noted on the sampling log. The sampling log will serve as the inspection form for the monitoring network. Additional detail regarding monitoring and sampling protocols are provided in the site-specific Field Activities Plan provided as Appendix I of this document.

5.0 OPERATION AND MAINTENANCE PLAN – Not Applicable

6.0 PERIODIC ASSESSMENTS/EVALUATIONS – Not Applicable

7.0. REPORTING REQUIREMENTS

7.1 Site Management Reports

All site management inspection, maintenance and monitoring events will be recorded on the appropriate site management forms provided in Appendix H. These forms are subject to NYSDEC revision.

All applicable inspection forms and other records, including media sampling data and system maintenance reports, generated for the site during the reporting period will be provided in electronic format to the NYSDEC in accordance with the requirements of Table 6 and summarized in the Periodic Review Report.

Table 6: Schedule of Monitoring/Inspection Reports

Task/Report	Reporting Frequency*
Inspection Report	Annually
Periodic Review Report	Annually, or as otherwise determined by the Department

* The frequency of events will be conducted as specified until otherwise approved by the NYSDEC.

All interim monitoring/inspections reports will include, at a minimum:

- Date of event or reporting period;
- Name, company, and position of person(s) conducting monitoring/inspection activities;
- Description of the activities performed;
- Where appropriate, color photographs or sketches showing the approximate location of any problems or incidents noted (included either on the checklist/form or on an attached sheet);
- Type of samples collected (e.g., sub-slab vapor, indoor air, outdoor air, etc.);
- Copies of all field forms completed (e.g., well sampling logs, chain-of custody documentation, etc.);
- Sampling results in comparison to appropriate standards/criteria;
- A figure illustrating sample type and sampling locations;
- Copies of all laboratory data sheets and the required laboratory data deliverables required for all points sampled (to be submitted electronically in the NYSDEC-identified format);
- Any observations, conclusions, or recommendations; and

- A determination as to whether contaminant conditions have changed since the last reporting event.

Routine maintenance event reporting forms will include, at a minimum:

- Date of event;
- Name, company, and position of person(s) conducting maintenance activities;
- Description of maintenance activities performed;
- Any modifications to the system;
- Where appropriate, color photographs or sketches showing the approximate location of any problems or incidents noted (included either on the checklist/form or on an attached sheet); and,
- Other documentation such as copies of invoices for maintenance work, receipts for replacement equipment, etc., (attached to the checklist/form).

Non-routine maintenance event reporting forms will include, at a minimum:

- Date of event;
- Name, company, and position of person(s) conducting non-routine maintenance/repair activities;
- Description of non-routine activities performed;
- Where appropriate, color photographs or sketches showing the approximate location of any problems or incidents (included either on the form or on an attached sheet); and
- Other documentation such as copies of invoices for repair work, receipts for replacement equipment, etc. (attached to the checklist/form).

Data will be reported in digital format as determined by the NYSDEC. Currently, data is to be supplied electronically and submitted to the NYSDEC EQuIS™ database in accordance with the requirements found at this link http://www.dec.ny.gov/chemical/62440.html.

7.2 Periodic Review Report

The periodic review report shall be submitted annually to the Department or at another frequency as may be required by the Department. In the event that the site is subdivided into separate parcels with different ownership, a single Periodic Review Report will be prepared that addresses the site described in Appendix B - Environmental Easement. The report will be prepared in accordance with NYSDEC's DER-10 and submitted within 30 days of the end of each certification period. Media sampling results will also be incorporated into the Periodic Review Report. The report will include:

- Date of event or reporting period;
- Name, company, and position of person(s) conducting monitoring/inspection activities;
- Description of the activities performed;
- Where appropriate, color photographs or sketches showing the approximate location of any problems or incidents noted (included either on the checklist/form or on an attached sheet);
- Type of samples collected (e.g., sub-slab vapor, indoor air, outdoor air, etc.);
- Copies of all field forms completed (e.g., well sampling logs, chain-of-custody documentation, etc.);
- Sampling results in comparison to appropriate standards/criteria;
- A figure illustrating sample type and sampling locations;
- Copies of all laboratory data sheets and the required laboratory data deliverables required for all points sampled (to be submitted electronically in the NYSDEC-identified format);
- Any observations, conclusions, or recommendations; and
- A determination as to whether contaminant conditions have changed since the last reporting event.

- Identification, assessment and certification of all ICs required by the remedy for the site.
- Data summary tables and graphical representations of contaminants of concern by media (groundwater, etc.), which include a listing of all compounds analyzed, along with the applicable standards, with all exceedances highlighted. These will include a presentation of past data as part of an evaluation of contaminant concentration trends.
- Results of all analyses, copies of all laboratory data sheets, and the required laboratory data deliverables for all samples collected during the reporting period will be submitted in digital format as determined by the NYSDEC. Currently, data is supplied electronically and submitted to the NYSDEC EQuIS™ database in accordance with the requirements found at this link: http://www.dec.ny.gov/chemical/62440.html.
- A site evaluation, which includes the following:
  - The compliance of the remedy with the requirements of the site-specific ROD;
  - Any new conclusions or observations regarding site contamination based on inspections or data generated by the Monitoring and Sampling Plan for the media being monitored;
  - Recommendations regarding any necessary changes to the remedy and/or Monitoring and Sampling Plan; and

- Trends in contaminant levels in the affected media will be evaluated to determine if the remedy continues to be effective in achieving remedial goals as specified by the Decision Document.
- The overall performance and effectiveness of the remedy.

7.2.1 Certification of Institutional Controls

Following the last inspection of the reporting period, a qualified environmental professional or Professional Engineer licensed to practice in New York State will prepare, and include in the Periodic Review Report, the following certification as per the requirements of NYSDEC DER-10:

"For each institutional identified for the site, I certify that all of the following statements are true:

- *The inspection of the site to confirm the effectiveness of the institutional controls required by the remedial program was performed under my direction;*
- *The institutional control employed at this site is unchanged from the date the control was put in place, or last approved by the Department;*
  Nothing has occurred that would impair the ability of the control to protect the public health and environment;
- *Nothing has occurred that would constitute a violation or failure to comply with any site management plan for this control;*
- *Access to the site will continue to be provided to the Department to evaluate the remedy, including access to evaluate the continued maintenance of this control;*
- *If a financial assurance mechanism is required under the oversight document for the site, the mechanism remains valid and sufficient for the intended purpose under the document;*
- *Use of the site is compliant with the Environmental Easement;*
- *To the best of my knowledge and belief, the work and conclusions described in this certification are in accordance with the requirements of the site remedial* program and generally accepted engineering practices; and
- *The information presented in this report is accurate and complete.*

I certify that all information and statements in this certification form are true. I understand that a false statement made herein is punishable as a Class "A" misdemeanor, pursuant to Section 210.45 of the Penal Law. I, [name], of [business address], am certifying as [Owner/Remedial Party or Owner's/Remedial Party's Designated Site Representative]"

At the end of each certifying period, as determined by the NYSDEC, the following certification will be provided to the Department:

"For each institutional identified for the site, I certify that all of the following statements are true:

- *The institutional control employed at this site is unchanged from the date the control was put in place, or last approved by the Department;*
- *Nothing has occurred that would impair the ability of the control to protect the public health and environment;*
- *Nothing has occurred that would constitute a violation or failure to comply with any site management plan for this control;*
- *Access to the site will continue to be provided to the Department to evaluate the remedy, including access to evaluate the continued maintenance of this control;*
- *If a financial assurance mechanism is required under the oversight document for the site, the mechanism remains valid and sufficient for the intended purpose under the document;*
- *Use of the site is compliant with the Environmental Easement.*
- *The information presented in this report is accurate and complete.*

I certify that all information and statements in this certification form are true. I understand that a false statement made herein is punishable as a Class "A" misdemeanor, pursuant to Section 210.45 of the Penal Law. I, [name], of [business address], am certifying as [Owner or Owner's Designated Site Representative] (and if the site consists of multiple properties): [and I have been authorized and designated by all site owners to sign this certification] for the site."

The signed certification will be included in the Periodic Review Report.

The Periodic Review Report will be submitted, in electronic format, to the NYSDEC Central Office, Regional Office in which the site is located and the NYSDOH Bureau of Environmental Exposure Investigation. The Periodic Review Report may need to be submitted in hard-copy format, as requested by the NYSDEC project manager.

7.3 Corrective Measures Work Plan

If any component of the remedy is found to have failed, or if the periodic certification cannot be provided due to the failure of an institutional control, a Corrective Measures Work Plan will be submitted to the NYSDEC for approval. This plan will explain the failure and provide the details and schedule for performing work necessary to correct the failure. Unless an emergency condition exists, no work will be performed pursuant to the Corrective Measures Work Plan until it has been approved by the NYSDEC.

8.0 REFERENCES

1. 6NYCRR Part 375, Environmental Remediation Programs. December 14, 2006.

2. NYSDEC DER-10 – "Technical Guidance for Site Investigation and Remediation".

3. NYSDEC, 1998. Ambient Water Quality Standards and Guidance Values and Groundwater Effluent Limitations Division of Water Technical and Operational Guidance Series (TOGS) 1.1.1. June 1998 (April 2000 addendum).

4. Golder Associates Inc., 2015, "Phase II Environmental Assessment", Osmose Realty Corp Site, Buffalo, New York, April.

5. Green, Kevin M., n.d., "Osmose, NYSDEC Site No. 915143, Annual Report (June 1, 2014 to June 30, 2015) And BPDES Permit No. 12-05-BU114"

6. Inventum Engineering, P.C., 2018, November 2017 Monitoring Well Data Summary, Osmose Wood Preserving Site, NYSDEC Site #915143, 980 Ellicott Street, Buffalo, New York.

7. NYSDEC, 1997, Record of Decision, Osmose Wood Preserving, Inc., Buffalo, Erie County, Site Number 915143, January.

8. NYSDEC, 1999, Order on Consent, Index #B9-0314-90-01, Site Code #915143.

9. NYSDEC, 2006, Letter to Tom Grogan of Osmose, Inc., "Pump and Treat System, Osmose Wood Preserving Site (#915143)", May 23.

10. NYSDEC, 2012, Letter to Edwin Goetz of Osmose, Inc., "Site Management Corrective Measures and Periodic Review 2010-2012, Osmose, Inc., Site No. 915143", October 22.

11. NYSDEC, 2017, Order on Consent and Administrative Settlement, Index No. R9-20170520-83, DEC Site No. 915143.

12. NYSDEC July 17, 2019 Environmental Easement Granted Pursuant to Article 71, Title 36 of the New York State Environmental Conservation Law, Site No. 915143, Order on Consent Index: B9-0314-90-01, Filed July 29, 2019.

TABLES

Table 2

Osmose Wood Preserving Site
a/k/a 980 Ellicott Street Site
Buffalo, New York

Well ID		6 CRR-NY 703.5 Table 1 Standards and Guidance Values	MW-001		MW-002		MW-5						MW-11					
Casing Elevation	(ft)		640.16		641.09						640.80						640.09	
Date			11/27/17	02/21/18	11/27/17	02/20/18	06/09/12	06/19/13	6/##/2014	06/23/15	11/27/17	02/22/18	06/09/12	06/19/13	6/##/2014	06/23/15	11/27/17	02/21/18
Depth to Water	(ft)		6.11	2.82	3.74	2.13					6.18	0.95					6.27	0.5
Water Elevation	(ft-msl)		634.05	-2.82	637.35	-2.13					634.62	-0.95					633.82	-0.50
Depth to Product	(ft)		ND	ND	ND	ND					ND	ND			ND		ND	ND
Product Elevation	(ft-msl)		ND	ND	ND	ND					ND	ND			ND		ND	ND
Ethylbenzene	(ug/L)	5	**8.97**	<2.0	NA	NA	Dry	**5.30**	2	4.6	0.33	<2.0	NR	NR	NR	NR	<2	<2.0
m,p-Xylene	(ug/L)	5	**15.10**	2.86	NA	NA	Dry	**17.00**	**6.4**	**15**	**9.06**	<2.0	NR	NR	NR	NR	<2	<2.0
o-Xylene	(ug/L)	5	**13.40**	3.05	NA	NA	Dry				**12.9**	<2.0	NR	NR	NR	NR	<2	<2.0
Isopropylbenzene	(ug/L)	5	**18**	2.96	NA	NA	Dry	NR	NR	NR	3.36	<2.0	NR	NR	NR	NR	<2	<2.0
2- Methylnapthalene	(ug/L)	NC	138	<5.0	NA	NA	Dry	NR	NR	NR	12.3	<5.0	NR	NR	NR	NR	<10	<5.0
Acenaphthene	(ug/L)	20	**318**	**42.0**	NA	NA	Dry	0.75	**43**	**61**	**164**	**23.5**		.030J		0.23	<10	<5.0
Benzo(b) fluoranthene	(ug/L)	0.002	<100	<5.0	NA	NA	Dry	**1**	**1.1**	NR	<10	<5.0	**.065J**	**.12J**	NR	NR	<10	<5.0
Benzo(g,h,i) perylene	(ug/L)	NC	<100	<5.0	NA	NA	Dry	NR	NR	NR	<10	<5.0	NR	NR	NR	NR	<10	<5.0
Carbazole	(ug/L)	NC	<100	<5.0	NA	NA	Dry	NR	NR	NR	11.4	<5.0	NR	NR	NR	NR	<10	<5.0
Dibenzofuran	(ug/L)	NC	162	13	NA	NA	Dry	NR	NR	NR	66.7	10.5	NR	NR	NR	NR	<10	<5.0
Fluoranthene	(ug/L)	50	**107**	<5.0	NA	NA	Dry	9	12	2.1	12	<5.0	.11J	.18J	0.17	.064J	<10	<5.0
Fluorene	(ug/L)	50	**162**	11.4	NA	NA	Dry	0.46	8.3	.41J	47.5	7.44	NR	NR	NR	.092J	<10	<5.0
Naphthalene	(ug/L)	10	**1020**	<5.0	NA	NA	Dry	0.096J	0.38	NR	**184**	6.62	NR	.081J	NR	**0**	<10	<5.0
Phenanthrene	(ug/L)	50	**287**	<5.0	NA	NA	Dry	0.85	0.88	NR	18.9	<5.0	.076J	.10J	0.14	.12J	<10	<5.0
Pyrene	(ug/L)	50	<100	<5.0	NA	NA	Dry	9.30	8.10	1.20	<10	<5.0	.084J	.15J	0.14	.053J	<10	<5.0

Bold	Indicates exceeds 6 CRR-NY 703.5 Table 1 Ambient Water Quality Standards
Bold	Indicates exceeds 6 CRR-NY 703.5 Table 1 Ambient Water Quality Guidance Value
NC	No standard or guidance currently established
NR	l in Osmose document

Notes:

1) The histroical data presented herein are from Golder Associates, 2015, "Request for Shutdown/decommissioning of Groundwater Collection & Treatment System - Osmose Wood Preserving Site (Site #915143), 980 Ellicott Street, Buffalo, New York.

2) There was a trace of LNAPL in the 11/27/2018 MW-001 sample, results may not be representative of groundwater quality. Well will be redeveloped and resampled in February 2018.
3) RW-1 had a trace of LNAPL. Attempted to sample the NAPL but the the recoverable quantity was not sufficient for analysis.

Table 2

Osmose Wood Preserving Site
a/k/a 980 Ellicott Street Site
Buffalo, New York

Well ID		**6 CRR-NY 703.5 Table 1 Standards and Guidance Values**	**MW-13**						MW-15	**MW-17**					
Casing Elevation	**(ft)**						640.31		640.11					640.14	
Date			06/09/12	06/19/13	6/##/2014	06/23/15	11/27/17	02/21/18	11/27/17	06/09/12	06/19/13	6/##/2014	06/23/15	11/27/17	02/22/18
Depth to Water	(ft)						4.09	1.03	5.23					5.85	1.51
Water Elevation	(ft-msl)						636.22	-1.03	634.88					634.29	-1.51
Depth to Product	(ft)						ND	ND	ND					ND	ND
Product Elevation	(ft-msl)						ND	ND	ND					ND	ND
Ethylbenzene	(ug/L)	5	NR	NR	NR	NR	<2	<2.0	<2	NR	NR	1.2	NR	3.26	<2.0
m,p-Xylene	(ug/L)	5	NR	**59J**	NR	NR	<2	<2.0	<2	**30**	NR	**28**	**15**	**23.6**	<2.0
o-Xylene	(ug/L)	5	NR		NR	NR	<2	<2.0	<2		NR			**41**	<2.0
Isopropylbenzene	(ug/L)	5	NR	NR	NR	NR	<2	<2.0	<2	NR	NR	NR	NR	**11.6**	<2.0
2- Methylnapthalene	(ug/L)	NC	NR	NR	NR	NR	<10	<5.0	<10	NR	NR	NR	NR	119	<5.0
Acenaphthene	(ug/L)	20	NR	**170**	1.6	.12J	<10	<5.0	<10	**34**	.052J	**51**	**190**	**400**	<5.0
Benzo(b) fluoranthene	(ug/L)	0.002	**.13J**	**1.1**	**0.48**	**.11J**	**12**	<5.0	<10	**0.4**	**0.35**	**3.7**	NR	<100	<5.0
Benzo(g,h,i) perylene	(ug/L)	NC	.095J	0.37	0.41	.10J	10.6	<5.0	<10	0.31	0.5	1.6	NR	<100	<5.0
Carbazole	(ug/L)	NC	NR	NR	NR	NR	<10	<5.0	<10	NR	NR	NR	NR	<100	<5.0
Dibenzofuran	(ug/L)	NC	NR	NR	NR	NR	<10	<5.0	<10	NR	NR	NR	NR	160	<5.0
Fluoranthene	(ug/L)	50	.17J	11	1.3	0.27	15.1	<5.0	<10	1.4	0.7	6.7	12B	<100	<5.0
Fluorene	(ug/L)	50	NR	**59**	0.71	.032J	<10	<5.0	<10	7.5	NR	11	**59**	**161**	<5.0
Naphthalene	(ug/L)	10	NR	**590**	NR	.086J	<10	<5.0	<10	**36**	.14J	**77**	**44**	**974**	<5.0
Phenanthrene	(ug/L)	50	.057J	32	0.86	.11J	<10	<5.0	<10	NR	0.26	2.3	23B	**159**	<5.0
Pyrene	(ug/L)	50	.14J	5.9	0.69	.17J	11.3	<5.0	<10	0.96	0.54	2.5	5.4	<100	<5.0

Bold	Indicates exceeds 6 CRI
Bold	Indicates exceeds 6 CRI
NC	No standard or guidanc
NR	l in Osmose document

Notes:

1) The histroical data presented herein are from C
980 Ellicott Street, Buffalo, New York.

2) There was a trace of LNAPL in the 11/27/201
3) RW-1 had a trace of LNAPL. Attempted to sa

Table 2

Osmose Wood Preserving Site
a/k/a 980 Ellicott Street Site
Buffalo, New York

Well ID		**6 CRR-NY 703.5 Table 1 Standards and Guidance Values**	**MW-24**						MW-25		**MW-28**						RW-1	
Casing Elevation	**(ft)**						641.28		639.50						639.94		640.69	
Date			06/09/12	06/19/13	6/##/2014	06/23/15	11/27/17	02/20/18	11/27/17	02/21/18	06/09/12	06/19/13	6/##/2014	06/23/15	11/27/17	02/21/18	11/27/17	02/20/18
Depth to Water	(ft)						6.36	5.39	4.36	2.88					6.96	6.73	6.13	4.28
Water Elevation	(ft-msl)						634.92	-5.39	635.14	-2.88					632.98	-6.73	634.56	-4.28
Depth to Product	(ft)						ND		ND	ND					ND	ND	**	**
Product Elevation	(ft-msl)						ND		ND	ND					ND	ND	**	**
Ethylbenzene	(ug/L)	5	NR	NR	NR	NR	NA	NA	<2	<2.0	NR	NR	NR	NR	<2	<2.0	NA	NA
m,p-Xylene	(ug/L)	5	NR	NR	NR	NR	NA	NA	<2	<2.0	NR	NR	NR	NR	<2	<2.0	NA	NA
o-Xylene	(ug/L)	5	NR	NR	NR	NR	NA	NA	<2	<2.0	NR	NR	NR	NR	<2	<2.0	NA	NA
Isopropylbenzene	(ug/L)	5	NR	NR	NR	NR	NA	NA	<2	<2.0	NR	NR	NR	NR	<2	<2.0	NA	NA
2- Methylnapthalene	(ug/L)	NC	NR	NR	NR	NR	NA	NA	<10	<5.0	NR	NR	NR	NR	<10	<5.0	NA	NA
Acenaphthene	(ug/L)	20	0.29	NR	3.3	0.54	NA	NA	<10	<5.0	NR	.080J	NR	.15J	<10	<5.0	NA	NA
Benzo(b) fluoranthene	(ug/L)	0.002	**5.7**	NR	**40**	**5.7**	NA	NA	<10	<5.0	NR	**1.4**	NR	NR	<10	<5.0	NA	NA
Benzo(g,h,i) perylene	(ug/L)	NC	2.9	NR	25	4	NA	NA	<10	<5.0	NR	1	NR	NR	<10	<5.0	NA	NA
Carbazole	(ug/L)	NC	NR	NR	NR	NR	NA	NA	<10	<5.0	NR	NR	NR	NR	<10	<5.0	NA	NA
Dibenzofuran	(ug/L)	NC	NR	NR	NR	NR	NA	NA	<10	<5.0	NR	NR	NR	NR	<10	<5.0	NA	NA
Fluoranthene	(ug/L)	50	6.7	NR	**65**	9.1B	NA	NA	<10	<5.0	NR	1.9	NR	NR	<10	<5.0	NA	NA
Fluorene	(ug/L)	50	0.21	NR	2.3	0.31	NA	NA	<10	<5.0	NR	.047J	NR	NR	<10	<5.0	NA	NA
Naphthalene	(ug/L)	10	.037J	NR	0.41	.14J	NA	NA	<10	<5.0	NR	NR	NR	0.3	<10	<5.0	NA	NA
Phenanthrene	(ug/L)	50	2.4	NR	17	2.3B	NA	NA	<10	<5.0	NR	0.5	NR	.093J	<10	<5.0	NA	NA
Pyrene	(ug/L)	50	5.1	NR	41	5.3	NA	NA	<10	<5.0	NR	1.2	NR	NR	<10	<5.0	NA	NA

Bold	Indicates exceeds 6 CR
Bold	Indicates exceeds 6 CR
NC	No standard or guidanc
NR	l in Osmose document

Notes:

1) The histroical data presented herein are from (
980 Ellicott Street, Buffalo, New York.

2) There was a trace of LNAPL in the 11/27/201
3) RW-1 had a trace of LNAPL. Attempted to sa

Table 3

Osmose Wood Preserving Site
a/k/a 980 Ellicott Street Site
Buffalo, New York

Well ID		6 CRR-NY 703.5 Table 1 Standards and Guidance Values	MW-5					MW-11				
			Before Remedial Action		Post Remedial Action		Current	Before Remedial Action		Post Remedial Action		Current
Date Range			December 2004 to June 2011		June 2013 to June 2015		02/21/18	December 2004 to June 2011		June 2013 to June 2015		02/21/18
			Minimum Detection	Maximum Detection	Minimum Detection	Maximum Detection		Minimum Detection	Maximum Detection	Minimum Detection	Maximum Detection	
Ethylbenzene	(ug/L)	5	**16**	**34**	2	**5**	<2.0	ND	ND	ND	ND	<2
m,p-Xylene	(ug/L)	5	**170**	**460**	**6**	**17**	2.86	ND	ND	ND	ND	<2
o-Xylene	(ug/L)	5					3.05					<2
Acenaphthene	(ug/L)	20	**670**	**35000**	0.75	**49**	**42**	ND	**20**	ND	2.3	<5
Benzo(b) fluoranthene	(ug/L)	0.002	**5**	**770**	**0.088**	**1.1**	<5	**0.065**	**35**	ND	**0.12**	<5
Fluoranthene	(ug/L)	50	**77**	**17000**	2.1	9	<5	0.11	34	0.064	0.18	<5
Fluorene	(ug/L)	50	**220**	**18000**	0.4	8.3	11.4	ND	11	ND	0.092	<5
Naphthalene	(ug/L)	10	**1400**	**27000**	0.06	0.38	<5	ND	**14**	ND	0.33	<5
Phenanthrene	(ug/L)	50	**190**	**29000**	0.11	0.88	<5	0.076	24	0.1	0.14	<5
Pyrene	(ug/L)	50	**50**	**8100**	1.2	9.3	<5	0.064	49	0.053	0.15	<5

Bold	Indicates exceeds 6 CRR-NY 703.5 Table 1 Ambient Water Quality Standards
Bold	Indicates exceeds 6 CRR-NY 703.5 Table 1 Ambient Water Quality Guidance Value
NC	No standard or guidance currently established

1) The histroical data prel in Osmose document

Notes:

1) The histroical data presented in tabular form to 780 Ellicott Street, LLC by Osmose Chemical.
2) There was a trace of LNAPL in the 11/27/2017 MW-001 sample, results may not be representative of groundwater quality. Well will be redeveloped and resampled in February 2018.
3) RW-1 had a trace of LNAPL. Attempted to sample not the quantity was not sufficient for analysis.

Table 3

Osmose Wood Preserving Site
a/k/a 980 Ellicott Street Site
Buffalo, New York

Well ID		6 CRR-NY 703.5 Table 1 Standards and Guidance Values	MW-13					MW-17				
			Before Remedial Action		Post Remedial Action		Current	Before Remedial Action		Post Remedial Action		Current
Date Range			December 2004 to June 2011		June 2013 to June 2015		02/21/18	December 2004 to June 2011		June 2013 to June 2015		02/21/18
			Minimum Detection	Maximum Detection	Minimum Detection	Maximum Detection		Minimum Detection	Maximum Detection	Minimum Detection	Maximum Detection	
Ethylbenzene	(ug/L)	5	ND	ND	ND	ND	<2	ND	**36**	ND	1	<2
m,p-Xylene	(ug/L)	5	ND	ND	ND	**59**	<2	ND	**550**	ND	**28**	**10.9**
o-Xylene	(ug/L)	5					<2					**19.3**
Acenaphthene	(ug/L)	20	ND	6.1	ND	5.1	<5	ND	**550**	ND	3.1	**221**
Benzo(b) fluoranthene	(ug/L)	0.002	**0.13**	**9.2**	**0.11**	**1.1**	<5	ND	**210**	**0.35**	**3.7**	<25
Fluoranthene	(ug/L)	50	0.17	17	0.27	11	<5	1.4	**660**	0.7	10	<25
Fluorene	(ug/L)	50	ND	6.1	0.032	**63**	<5	2.5	**630**	ND	44	**93.2**
Naphthalene	(ug/L)	10	ND	3.5	0.086	**160**	<5	ND	**2300**	0.14	**77**	**265**
Phenanthrene	(ug/L)	50	0.057	13	0.11	32	<5	ND	**1200**	0.26	17	**74.9**
Pyrene	(ug/L)	50	0.14	15	0.17	5.9	<5	0.96	**400**	0.54	2.5	<25

Bold	Indicates exceeds 6 CR
Bold	Indicates exceeds 6 CR
NC	No standard or guidanc

1) The histroical data prel in Osmose document

Notes:

1) The histroical data presented in tabular form tc
2) There was a trace of LNAPL in the 11/27/201
3) RW-1 had a trace of LNAPL. Attempted to sa

Table 3

Osmose Wood Preserving Site
a/k/a 980 Ellicott Street Site
Buffalo, New York

Well ID		6 CRR-NY 703.5 Table 1 Standards and Guidance Values	MW-24					MW-28				
			Before Remedial Action		Post Remedial Action		Current	Before Remedial Action		Post Remedial Action		Current
Date Range			December 2004 to June 2011		June 2013 to June 2015		02/21/18	December 2004 to June 2011		June 2013 to June 2015		02/21/18
			Minimum Detection	Maximum Detection	Minimum Detection	Maximum Detection		Minimum Detection	Maximum Detection	Minimum Detection	Maximum Detection	
Ethylbenzene	(ug/L)	5	ND	ND	ND	ND	NA	ND	ND	ND	ND	<2
m,p-Xylene	(ug/L)	5	ND	ND	ND	ND	NA	ND	ND	ND	ND	<2
o-Xylene	(ug/L)	5					NA					<2
Acenaphthene	(ug/L)	20	0.12	**200**	ND	1.1	NA	ND	0.28	ND	ND	<5
Benzo(b) fluoranthene	(ug/L)	0.002	**5.7**	**790**	ND	**46**	NA	ND	**1.9**	ND	**1.4**	<5
Fluoranthene	(ug/L)	50	6.7	890	ND	**65**	NA	ND	2.8	ND	1.9	<5
Fluorene	(ug/L)	50	ND	69	ND	2.3	NA	ND	1.8	ND	0.061	<5
Naphthalene	(ug/L)	10	ND	**17**	ND	0.41	NA	ND	0.79	ND	0.3	<5
Phenanthrene	(ug/L)	50	2.4	**480**	ND	17	NA	ND	3.6	ND	0.5	<5
Pyrene	(ug/L)	50	5.1	**1000**	ND	41	NA	ND	1.9	ND	1.2	<5

Bold	Indicates exceeds 6 CR
Bold	Indicates exceeds 6 CR
NC	No standard or guidanc

1) The histroical data prel in Osmose document

Notes:

1) The histroical data presented in tabular form tc
2) There was a trace of LNAPL in the 11/27/201
3) RW-1 had a trace of LNAPL. Attempted to sa

FIGURES

REVISION

No.	Description	Date

FIGURE TITLE:

FIGURE 1
SITE LAYOUT MAP

CLIENT NAME:

780 ELLICOTT STREET, LLC
333 GANSON STREET
BUFFALO, NEW YORK

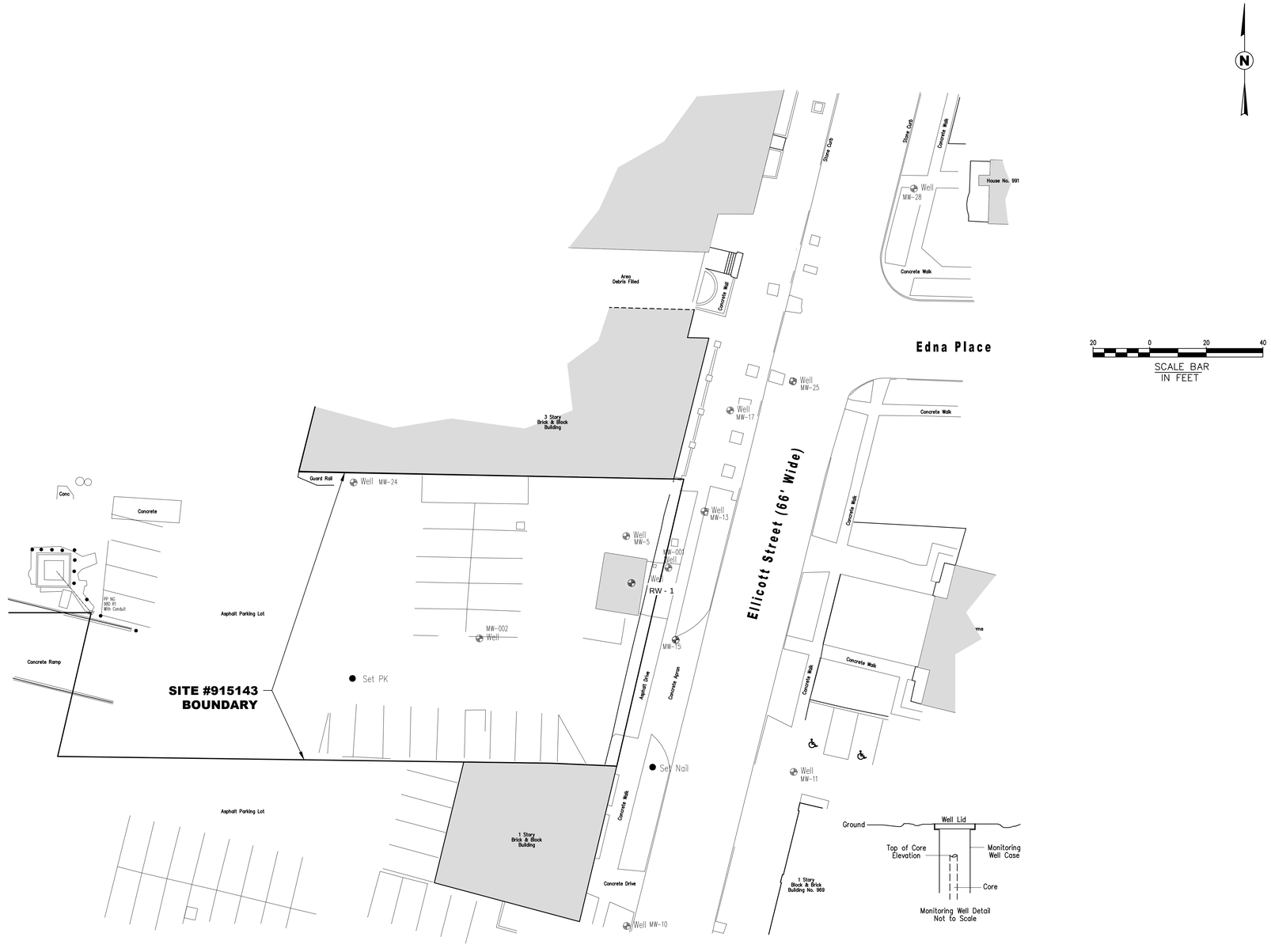
PROJECT NAME:

SITE
MANAGEMENT
PLAN

FIGURE No.

SMP-001

SHEET No. 1 of 1



JBlack CONSULTING LLC

REVISION

No.	Description	Date

FIGURE 2
MONITORING WELL
LOCATION MAP

FIGURE TITLE:

CLIENT NAME:

780 ELLICOTT STREET, LLC
333 GANSON STREET
BUFFALO, NEW YORK

PROJECT NAME:

SITE MANAGEMENT PLAN

FIGURE No.

SMP-002

SHEET No. 1 of 1

Well ID		6 CRR-NY 703.5 Table 1 Standards and Guidance Values	MW-002	MW-24
Casing Elevation	**(ft)**		641.09	641.28
Date			02/20/18	2/21/2018
Depth to Water	(ft)		2.13	5.39
Water Elevation	(ft-msl)		638.96	635.89
Depth to Product	(ft)		ND	ND
Product Elevation	(ft-msl)		ND	ND
Ethylbenzene	(ug/L)	5	NA	NA
m,p-Xylene	(ug/L)	5	NA	NA
o-Xylene	(ug/L)	5	NA	NA
Dissolved Oxygen (O_2)	(ug/L)	5	NA	NA
2- Methylnapthalene	(ug/L)	NC	NA	NA
Acenaphthene	(ug/L)	20	NA	NA
Benzo(b) fluoranthene	(ug/L)	0.002	NA	NA
Benzo(g,h,i) perylene	(ug/L)	NC	NA	NA
Carbazole	(ug/L)	NC	NA	NA
Dibenzofuran	(ug/L)	NC	NA	NA
Fluoranthene	(ug/L)	50	NA	NA
Fluorene	(ug/L)	50	NA	NA
Naphthalene	(ug/L)	10	NA	NA
Phenanthrene	(ug/L)	50	NA	NA
Pyrene	(ug/L)	50	NA	NA

Well ID		6 CRR-NY 703.5 Table 1 Standards and Guidance Values	MW-17	MW-25	MW-28
Casing Elevation	**(ft)**		640.14	639.50	639.94
Date			02/21/18	02/21/18	02/21/18
Depth to Water	(ft)		4.38	2.88	6.73
Water Elevation	(ft-msl)		635.76	636.62	633.21
Depth to Product	(ft)		ND	ND	ND
Product Elevation	(ft-msl)		ND	ND	ND
Ethylbenzene	(ug/L)	5	<2.0	<2.0	<2.0
m,p-Xylene	(ug/L)	5	**10.9**	<2.0	<2.0
o-Xylene	(ug/L)	5	**19.3**	<2.0	<2.0
Dissolved Oxygen (O_2)	(ug/L)	5	4.76	<2.0	<2.0
2- Methylnapthalene	(ug/L)	NC	32.3	<5.0	<5.0
Acenaphthene	(ug/L)	20	**221**	<5.0	<5.0
Benzo(b) fluoranthene	(ug/L)	0.002	<25	<5.0	<5.0
Benzo(g,h,i) perylene	(ug/L)	NC	<25	<5.0	<5.0
Carbazole	(ug/L)	NC	<25	<5.0	<5.0
Dibenzofuran	(ug/L)	NC	77.0	<5.0	<5.0
Fluoranthene	(ug/L)	50	27.5	<5.0	<5.0
Fluorene	(ug/L)	50	**93.2**	<5.0	<5.0
Naphthalene	(ug/L)	10	**265**	<5.0	<5.0
Phenanthrene	(ug/L)	50	**74.9**	<5.0	<5.0
Pyrene	(ug/L)	50	<25	<5.0	<5.0

20 0 20 40
SCALE BAR IN FEET

Well ID		6 CRR-NY 703.5 Table 1 Standards and Guidance Values	MW-001	MW-5	MW-11	MW-13
Casing Elevation	**(ft)**		640.16	640.80	640.09	640.31
Date			02/21/18	02/22/18	02/21/18	02/21/18
Depth to Water	(ft)		2.82	0.95	0.5	1.03
Water Elevation	(ft-msl)		637.34	639.85	639.59	639.28
Depth to Product	(ft)		ND	ND	ND	ND
Product Elevation	(ft-msl)		ND	ND	ND	ND
Ethylbenzene	(ug/L)	5	<2.0	<2.0	<2.0	<2.0
m,p-Xylene	(ug/L)	5	2.86	<2.0	<2.0	<2.0
o-Xylene	(ug/L)	5	3.05	<2.0	<2.0	<2.0
Dissolved Oxygen (O_2)	(ug/L)	5	2.96	<2.0	<2.0	<2.0
2- Methylnapthalene	(ug/L)	NC	<5.0	<5.0	<5.0	<5.0
Acenaphthene	(ug/L)	20	**42.0**	**23.5**	<5.0	<5.0
Benzo(b) fluoranthene	(ug/L)	0.002	<5.0	<5.0	<5.0	<5.0
Benzo(g,h,i) perylene	(ug/L)	NC	<5.0	<5.0	<5.0	<5.0
Carbazole	(ug/L)	NC	<5.0	<5.0	<5.0	<5.0
Dibenzofuran	(ug/L)	NC	13	10.5	<5.0	<5.0
Fluoranthene	(ug/L)	50	<5.0	<5.0	<5.0	<5.0
Fluorene	(ug/L)	50	11.4	7.44	<5.0	<5.0
Naphthalene	(ug/L)	10	<5.0	6.62	<5.0	<5.0
Phenanthrene	(ug/L)	50	<5.0	<5.0	<5.0	<5.0
Pyrene	(ug/L)	50	<5.0	<5.0	<5.0	<5.0

JBlack CONSULTING LLC

REVISION No. Description Date

FIGURE TITLE:
FIGURE 5
GROUND WATER QUALITY

CLIENT NAME:
780 ELLICOTT STREET, LLC
333 GANSON STREET
BUFFALO, NEW YORK

PROJECT NAME:
SITE MANAGEMENT PLAN

FIGURE No.
SMP-003

SHEET No. 1 of 1

APPENDIX A – ORDER ON CONSENT AND ADMINISTRATIVE SETTLEMENT – AUGUST 2017

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

Office of the General Counsel
625 Broadway, 14th Floor, Albany, New York 12233-1500
P: (518) 402-9185 I F: (518) 402-9018
www.dec.ny.gov

August 23, 2017

SENT VIA FIRST CLASS MAIL AND BY ELECTRONIC MAIL

Mr. David P. Flynn, Esq.
Phillips Lytle, LLP
One Canalside
125 Main Street
Buffalo, NY 14203-2887
dflynn@phillipslytle.com

RE: Order on Consent and Administrative Settlement
Index No.: R9-20170520-83
Site Name: Osmose Wood Preserving
Site No.: 915143

Dear Mr. Flynn:

Enclosed to complete your files is the fully executed Order on Consent and Administrative Settlement referencing the site located at 980 Ellicott Street, Buffalo, NY and 780 Ellicott Street, LLC.

If you have any further questions or concerns relating to this matter, please contact Ms. Jennifer Dougherty at 718-851-7194.

Sincerely,

Maria Mastroianni
Remediation Bureau
Office of General Counsel

Enclosure

ec: J. Dougherty, Esq., NYSDEC

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION
STATE SUPERFUND PROGRAM
ECL §27-1301 *et seq.*

In the Matter a Remedial Program for

ORDER ON CONSENT AND ADMINISTRATIVE SETTLEMENT
Index No. R9-20170520-83

DEC Site Name: 980 Ellicott Street Site
DEC Site No.: 915143
Site Address: 980 Ellicott Street
Buffalo, NY 14209
Erie County

Hereinafter referred to as "Site"

by: 780 Ellicott Street, LLC

RESPONDENT

Hereinafter referred to as "Respondent"

---

1. A. The New York State Department of Environmental Conservation ("Department") is responsible for inactive hazardous waste disposal site remedial programs pursuant to Article 27, Title 13 of the Environmental Conservation Law ("ECL") and Part 375 of Title 6 of the Official Compilation of Codes, Rules and Regulations ("6 NYCRR") and may issue orders consistent with the authority granted to the Commissioner by such statute.

B. The Department is responsible for carrying out the policy of the State of New York to conserve, improve and protect its natural resources and environment and control water, land, and air pollution consistent with the authority granted to the Department and the Commissioner by Article 1, Title 3 of the ECL.

C. This Order is issued pursuant to the Department's authority under, *inter alia*, ECL Article 27, Title 13 and ECL 3-0301, and resolves Respondent's liability to the State as provided at 6 NYCRR 375-1.5(b)(5).

2. The Site is currently listed the Registry of Inactive Hazardous Waste Disposal Sites in New York State as Site Number 915143 with a Classification of 4 pursuant to ECL 27-1305.

3. Respondent consents to the issuance of this Order without (i) an admission or finding of liability, fault, wrongdoing, or violation of any law, regulation, permit, order, requirement, or standard of care of any kind whatsoever; (ii) an acknowledgment that

there has been a release or threatened release of hazardous waste at or from the Site; and/or (iii) an acknowledgment that a release or threatened release of hazardous waste at or from the Site constitutes a significant threat to the public health or environment.

4. Respondent and the Department agree that the primary goals of this Order are for (i) Respondent to complete a Final Engineering Report (FER) documenting the Inactive Hazardous Waste Disposal Site Remedial Program implemented at the Site, (ii) Respondent to complete a Site Management Plan (SMP), (iii) Respondent to implement the SMP as well as those tasks set forth in Exhibit "B" hereto and thereafter upon completion of the above and the Department's approval of the same, (iv) the Department to issue a Certificate of Completion.

5. Solely with regard to the matters set forth below, Respondent hereby waives any right to a hearing as may be provided by law, consents to the issuance and entry of this Order, and agrees to be bound by its terms. Respondent consents to and agrees not to contest the authority or jurisdiction of the Department to issue or enforce this Order, and agrees not to contest the validity of this Order or its terms or the validity of data submitted to the Department by Respondent pursuant to this Order.

NOW, having considered this matter and being duly advised, **IT IS ORDERED THAT**:

I. Real Property

The Site subject to this Order has been assigned number 915143, consists of approximately 0.5 acres, and is as follows:

Subject Property Description (A Map of the Site is attached as Exhibit "A")

A portion of Tax Map/Parcel No.: Section 100 Subsection 63 Block 3 Lot 37
980 Ellicott Street
Buffalo, NY 14209
Owner: 780 Ellicott Street, LLC

II. Reporting

A FER and an SMP shall be submitted to the Department by the Respondent within 180 days after the effective date of this Order. The FER shall address the items identified in Exhibit B and comply with the applicable provisions of the ECL and 6 NYCRR 375 et seq.

III. Payment of State Costs

Invoices shall be sent to Respondent at the following address:

780 Ellicott Street, LLC
c/o Jon Williams
333 Ganson Street
Buffalo, NY 14203

In addition to the requirement to pay future state costs as set forth in Appendix "A", within forty-five (45) Days after the effective date of this Consent Order, Respondent shall pay to the Department the sum set forth on Exhibit "C", which shall represent reimbursement for past State Costs incurred prior to the effective date of this Consent Order. Respondent acknowledges that all past State Costs are not itemized on the cost summary and that additional charges may be billed at a later date for State Costs incurred prior to the effective date of this Consent Order.

IV. Communications

A. All written communications required by this Consent Order shall be transmitted by United States Postal Service, by private courier service, by hand delivery, or by electronic mail.

1. Communication from Respondent shall be sent to:

Jaspal Walia (1 hard copy (unbound for work plans) & 1 electronic copy)
Department of Environmental Conservation
Division of Environmental Remediation
270 Michigan Ave
Buffalo, NY 14203-2915
Jaspal.walia@dec.ny.gov

Krista Anders (electronic copy only)
New York State Department of Health
Bureau of Environmental Exposure Investigation
Empire State Plaza
Corning Tower Room 1787
Albany, NY 12237
Krista.anders@doh.ny.gov

Jennifer Dougherty, Esq. (correspondence only)
New York State Department of Environmental Conservation
Office of General Counsel
270 Michigan Ave
Buffalo, NY 14203-2915
Jennifer.dougherty@dec.ny.gov

B. The Department and Respondent reserve the right to designate additional or different addressees for communication on written notice to the other. Additionally, the Department reserves the right to request that the Respondent provide more than one paper copy of any work plan or report.

C. Each party shall notify the other within ninety (90) days after any change in the addresses listed in this paragraph or in Paragraph I.

V. Certificate of Completion

Upon the Department's issuance of a Certificate of Completion as provided at 6 NYCRR 375-1.9 and 375-2.9, Respondent shall obtain the benefits conferred by such provisions, subject to the terms and conditions described therein. The Letter's form and substance shall be materially similar to the attached Exhibit D.

VI. Miscellaneous

A. Appendix A - "Standard Clauses for All New York State, State Superfund Orders" is attached to and hereby made a part of this Order as if set forth fully herein.

B. In the event of a conflict between the main body of this Order (including any and all attachments thereto and amendments thereof) and the terms of Appendix A, the main body of this Order shall control.

C. The effective date of this Order is the 10th day after it is signed by the Commissioner or the Commissioner's designee.

DATED: August 23, 2017

BASIL SEGGOS
COMMISSIONER
NEW YORK STATE DEPARTMENT OF
ENVIRONMENTAL CONSERVATION

By: _____

Robert W. Schick, P.E., Director
Division of Environmental Remediation

CONSENT BY RESPONDENT

Respondent hereby consents to the issuing and entering of this Consent Order, waives Respondent's right to a hearing herein as provided by law, and agrees to be bound by this Consent Order.

780 Ellicott Street, LLC

By: _____

Title: Manager

Date: 8/3/17

STATE OF NEW YORK)
) ss:
COUNTY OF ERIE)

On the 3rd day of August in the year 2017, before me, the undersigned, personally appeared Jon M. Williams *(full name)* personally known to me or proved to me on the basis of satisfactory evidence to be the individual whose name is subscribed to the within instrument and acknowledged to me that he/she executed the same in his/her capacity, and that by his/her signature on the instrument, the individual, or the person upon behalf of which the individual acted, executed the instrument.

Acknowledgment by a corporation, in New York State:

On the 3rd day of August in the year 2017, before me, the undersigned, personally appeared Jon M. Williams *(full name)* personally known to me who, being duly sworn, did depose and say that he/she/they reside at 36 Audubon Drive, Snyder NY 14226 *(full mailing address)* and that he/she/they is (are) the Manager *(president or other officer or director or attorney in fact duly appointed)* of the 780 Ellicott Street, LLC *(full legal name of corporation)*, the corporation described in and which executed the above instrument; and that he/she/they signed his/her/their name(s) thereto by the authority of the board of directors of said corporation.

Nancy L. Mazur
Notary Public, State of New York

NANCY L. MAZUR
Notary Public, State of New York
Qualified in Erie County No. 1765930
My Commission Expires 11 30, 2017

Exhibit A

Elliott Street (66' Wide)
Niagara Boundary
789 Elliott Street LLC

EXHIBIT "B"
ADDITIONAL REPORTING REQUIRMENTS

1. 780 Ellicott will complete an inventory and condition assessment for each on-site and off-site well, in conformity with the DEC letters dated, August 26, 2015 and December 12, 2016 and addressed to Osmose, Inc., which are incorporated by reference. The assessment for each well shall include:
    a. Comprehensively assessing the integrity of each well.
    b. Measuring groundwater elevations at each well and preparing a groundwater flow map.
    c. Recording LNAPL thickness (if present) at each well.
    d. After the inventory and assessment, described above, for each on-site and off-site well, 780 Ellicott will propose a list of wells to be decommissioned.
        i. The inventory and list of wells proposed for decommissioning should be submitted within 30 days of the execution of this Order.
        ii. Such proposal shall justify why the wells are no longer needed to assess performance of the remedy.
        iii. This list of wells will be reviewed and approved by the DEC prior to decommissioning any well.
        iv. Following Department approval to decommission any well on the list, the well shall be decommissioned within 120 days.
    e. If the assessment identifies a well that in the DEC's opinion is required to adequately monitor the Site, it shall be repaired or replaced within 90 days.

2. Ongoing Monitoring and Maintenance (OMM) sampling shall be completed in conformance with the existing OMM plan (including any Department-approved revisions).
    a. It is anticipated that a minimum of two (2) years (four (4) rounds of sampling) will be required to assess long term performance of the remedy following shutdown of the system. If the remedial goals outlined in the January 1997 Record of Decision for Site No. 915143 are not achieved, the DEC will require additional remedial measures to be implemented, including but not limited to, initiation and operation of the treatment system.
    b. 780 Ellicott shall also provide groundwater flow maps in conjunction with the semi-annual sampling and reporting.
3. An SMP will be prepared, utilizing the current DEC template, which will include all of the SMP requirements and update the OMM Plan for the Site. Once approved, this SMP will supersede the requirements of the existing OMM Plan.

EXHIBIT "C"

Cost Summary

None.

Exhibit "D"

[date]

Hereinafter referred to as "Site"

780 Ellicott Street, LLC
c/o Jon Williams
333 Ganson Street
Buffalo, NY 14203

RE: Satisfactory Completion Letter/No Further Action Letter
Site No.: 915143
Site Name: 980 Ellicott Street Site (formerly Osmose Wood Preserving)

Dear Respondent:

This letter is sent to notify Respondent that it has satisfactorily completed the ***Site Management*** of the remediation project that Respondent undertook under the Consent Order Index No. R9-20170520-83 for 980 Ellicott Street, City of Buffalo, Erie County, New York (A portion of Tax Map/Parcel No.: Section 100 Subsection 63 Block 3 Lot 37) ("Site"). The New York State Department of Environmental Conservation ("Department") has determined, subject to the Department's reservation of rights outlined below, contained in the Consent Order, or existing at law, based upon our inspection of the above-referenced Site and upon our review of the documents you have submitted, that you completed the project in accordance with the terms and conditions of the above-referenced Order, no further remedial action (other than implementation of the Site Management Plan if required) is necessary, and that the Department will issue to Respondent a Certificate of Completion pursuant to 6 NYCRR Part 375-1.9 and 375-2.9..

Notwithstanding that the Department has determined that no further remedial action is necessary with the respect to the Site, the Department reserves any and all rights and authority, including rights concerning any claim for natural resource damages or the authority, consistent with 6 NYCRR Part 375-1.9 and 375-2.9, to engage in or require any further investigation or remediation the Department deems necessary. The Department retains all its respective rights concerning circumstances where Respondent, their lessees, sublessees, successors, or assigns cause or permit a Release or threat of Release at the site of any hazardous substance (as that term is defined at 42 USC 9601[14]) or petroleum (as that term is defined in Navigation Law § 172[15]).

Additionally, with respect to the site, nothing contained in this letter shall be construed to:

- preclude the State of New York on behalf of the New York State Environmental Protection and Spill Compensation Fund from recovering a claim of any kind or nature against any party;

- prejudice any rights of the Department to take any investigatory action or remediation or corrective measures it may deem necessary if Respondent fails to comply with the Order or if contamination other than contamination within the present knowledge of the Department is encountered at the Site;

- prohibit the Commissioner or his duly authorized representative from exercising any summary abatement powers.

In conclusion, the Department is pleased to be part of this effort to return the site to productive use and benefit to the entire community.

If you have any questions, please do not hesitate to contact Jaspal Walia site project manager, at (716) 851-7220

Sincerely,

Robert Schick
Director
Division of Environmental Remediation

ec: [list appropriate staff]

APPENDIX "A"

STANDARD CLAUSES FOR ALL NEW YORK STATE STATE SUPERFUND ORDERS

APPENDIX A

STANDARD CLAUSES FOR ALL NEW YORK STATE SUPERFUND ADMINISTRATIVE ORDERS

The parties to the State Superfund Order (hereinafter "Order") agree to be bound by the following clauses which are hereby made a part of the Order. The word "Respondent" herein refers to any party to the Order, other than the New York State Department of Environmental Conservation (hereinafter "Department").

I. Citizen Participation Plan

Within twenty (20) days after the effective date of this Order, Respondent shall submit for review and approval a written citizen participation plan prepared in accordance with the requirements of ECL §27-1417 and 6 NYCRR sections 375-1.10 and 375-3.10. Upon approval, the Citizen Participation Plan shall be deemed to be incorporated into and made a part of this Order.

II. Initial Submittal

Within thirty (30) days after the effective date of this Order, Respondent shall submit to the Department a Records Search Report prepared in accordance with Exhibit "B" attached to the Order. The Records Search Report can be limited if the Department notifies Respondent that prior submissions satisfy specific items required for the Records Search Report.

III. Development, Performance, and Reporting of Work Plans

A. Work Plan Requirements

All activities at the Site that comprise any element of an Inactive Hazardous Waste Disposal Site Remedial Program shall be conducted pursuant to one or more Department-approved work plans ("Work Plan" or "Work Plans") and this Order and all activities shall be consistent with the National Oil and Hazardous Substances Pollution Contingency Plan (NCP), 40 C.F.R. Part 300, as required under CERCLA, 42 U.S.C. § 9600 *et seq*. The Work Plan(s) under this Order shall address both on-Site and off-Site conditions and shall be developed and implemented in accordance with 6 NYCRR § 375-1.6(a), 375-3.6, and 375-6. All Department-approved Work Plans shall be incorporated into and become enforceable parts of this Order. Upon approval of a Work Plan by the Department, Respondent shall implement such Work Plan in accordance with the schedule contained therein. Nothing in this Subparagraph shall mandate that any particular Work Plan be submitted.

The Work Plans shall be captioned as follows:

1. Site Characterization ("SC") Work Plan: a Work Plan which provides for the identification of the presence of any hazardous waste disposal at the Site;

2. Remedial Investigation/Feasibility Study ("RI/FS") Work Plan: a Work Plan which provides for the investigation of the nature and extent of contamination within the boundaries of the Site and emanating from such Site and a study of remedial alternatives to address such on-site and off-site contamination;

3. Remedial Design/Remedial Action ("RD/RA") Work Plan: a Work Plan which provides for the development and implementation of final plans and specifications for implementing the remedial alternative set forth in the ROD;

4. "IRM Work Plan" if the Work Plan provides for an interim remedial measure;

5. "Site Management Plan" if the Work Plan provides for the identification and implementation of institutional and/or engineering controls as well as any necessary monitoring and/or operation and maintenance of the remedy; or

6. "Supplemental" if additional work plans other than those set forth in II.A.1-5 are required to be prepared and implemented.

B. Submission/Implementation of Work Plans

1. Respondent may opt to propose one or more additional or supplemental Work Plans (including one or more IRM Work Plans) at any time, which the Department shall review for appropriateness and technical sufficiency.

2. Any proposed Work Plan shall be submitted for the Department's review and approval and shall include, at a minimum, a chronological description of the anticipated activities, a schedule for performance of those activities, and sufficient detail to allow the Department to evaluate that Work Plan.

i. The Department shall notify Respondent in writing if the Department determines that any element of a Department-approved Work Plan needs to be modified in order to achieve the objectives of the Work Plan as set forth in Subparagraph III.A or to ensure that the Remedial Program otherwise protects human health and the environment. Upon receipt of such notification, Respondent shall, subject to dispute resolution pursuant to Paragraph XV, modify the Work Plan.

ii. The Department may request, subject to dispute resolution pursuant to Paragraph XV, that Respondent submit additional or supplemental Work Plans for the Site to complete the current remedial phase within thirty (30) Days after the Department's written request.

3. A Site Management Plan, if necessary, shall be submitted in accordance with the schedule set forth in the IRM Work Plan or Remedial Work Plan.

4. During all field activities conducted under a Department-approved Work Plan, Respondent shall have on-Site a representative who is qualified to supervise the activities undertaken in accordance with the provisions of 6 NYCRR 375-1.6(a)(3).

5. A Professional Engineer licensed and registered in New York State must stamp and sign all Work Plans other than SC or RI/FS Work Plans.

C. Submission of Final Reports and Periodic Reports

1. In accordance with the schedule contained in a Work Plan, Respondent shall submit a final report as provided at 6 NYCRR 375-1.6(b) and a final engineering report as provided at 6 NYCRR 375-1.6(c).

2. Any final report or final engineering report that includes construction activities shall include "as built" drawings showing any changes made to the remedial design or the IRM.

3. In the event that the final engineering report for the Site requires Site management, Respondent shall submit an initial periodic report by in accordance with the schedule in the Site Management Plan and thereafter in accordance with a schedule determined by the Department. Such periodic report shall be signed by a Professional Engineer or by such other qualified environmental professional as the Department may find acceptable and shall contain a certification as provided at 6 NYCRR 375-1.8(h)(3). Respondent may petition the Department for a determination that the institutional and/or engineering controls may be terminated. Such petition must be supported by a statement by a Professional Engineer that such controls are no longer necessary for the protection of public health and the environment. The Department shall not unreasonably withhold its approval of such petition.

4. Within sixty (60) days of the Department's approval of a Final Report, Respondent shall submit such additional Work Plans as is required by the Department in its approval letter of such Final Report. Failure to submit any additional Work Plans within such period shall be a violation of this Order.

D. Review of Submittals

1. The Department shall make a good faith effort to review and respond in writing to each submittal Respondent makes pursuant to this Order within sixty (60) Days. The Department's response shall include, in accordance with 6 NYCRR 375-1.6(d), an approval, modification request, or disapproval of the submittal, in whole or in part.

i. Upon the Department's written approval of a Work Plan, such Department-approved Work Plan shall be deemed to be incorporated into and made a part of this Order and shall be implemented in accordance with the schedule contained therein.

ii. If the Department modifies or requests modifications to a submittal, it shall specify the reasons for such modification(s). Within fifteen (15) Days after the date of the Department's written notice that Respondent's submittal has been disapproved, Respondent shall notify the Department of its election in accordance with 6 NYCRR 375-1.6(d)(3). If Respondent elects to modify or accept the Department's modifications to the submittal, Respondent shall make a revised submittal that incorporates all of the Department's modifications to the first submittal in accordance with the time period set forth in 6 NYCRR 375-1.6(d)(3). In the event that Respondent's revised submittal is disapproved, the Department shall set forth its reasons for such disapproval in writing and Respondent shall be in violation of this Order unless it invokes dispute resolution pursuant to Paragraph XV and its position prevails. Failure to make an election or failure to comply with the election is a violation of this Order.

iii. If the Department disapproves a submittal, it shall specify the reasons for its disapproval. Within fifteen (15) Days after the date of the Department's written notice that Respondent's submittal has been disapproved, Respondent shall notify the Department of its election in accordance with 6 NYCRR 375-1.6(d)(4). If Respondent elects to modify the submittal, Respondent shall make a revised submittal that addresses all of the Department's stated reasons for disapproving the first submittal in accordance with the time period set forth in 6 NYCRR 375-1.6(d)(4). In the event that Respondent's revised submittal is disapproved, the Department shall set forth its reasons for such disapproval in writing and Respondent shall be in violation of this Order unless it invokes dispute resolution pursuant to Paragraph XV and its position prevails. Failure to make an election or failure to comply with the election is a violation of this Order.

2. Within thirty (30) Days after the Department's approval of a final report, Respondent shall submit such final report, as well as all data gathered and drawings and submittals made pursuant to such Work Plan, in an electronic format acceptable to the Department. If any document cannot be converted into electronic format, Respondent shall submit such document in an alternative format acceptable to the Department.

E. Department's Issuance of a ROD

1. Respondent shall cooperate with the Department and provide reasonable assistance, consistent with the Citizen Participation Plan, in soliciting public comment on the proposed remedial action plan ("PRAP"), if any. After the close of the public comment period, the Department shall select a final remedial alternative for the Site in a ROD. Nothing in this Order shall be construed to abridge any rights of Respondent, as provided by law, to judicially challenge the Department's ROD.

2. Respondent shall have 60 days from the date of the Department's issuance of the ROD to notify the Department in writing whether it will implement the remedial activities required by such ROD. If the Respondent elects not to implement the required remedial activities, then this order shall terminate in accordance with Paragraph XIV.A. Failure to make an election or failure to comply with the election is a violation of this Order.

F. Institutional/Engineering Control Certification

In the event that the remedy for the Site, if any, or any Work Plan for the Site, requires institutional or engineering controls, Respondent shall submit a written certification in accordance with 6 NYCRR 375-1.8(h)(3) and 375-3.8(h)(2).

IV. Penalties

A. 1. Respondent's failure to comply with any term of this Order constitutes a violation of this Order, the ECL, and 6 NYCRR 375-2.11(a)(4). Nothing herein abridges Respondent's right to contest any allegation that it has failed to comply with this Order.

2. Payment of any penalties shall not in any way alter Respondent's obligations under this Order.

B. 1. Respondent shall not suffer any penalty or be subject to any proceeding or action in the event it cannot comply with any requirement of this Order as a result of any Force Majeure Event as provided at 6 NYCRR 375-1.5(b)(4). Respondent must use best efforts to anticipate the potential Force Majeure Event, best efforts to address any such event as it is occurring, and best efforts following the Force Majeure Event to minimize delay to the greatest extent possible. "Force Majeure" does not include Respondent's economic inability to comply with any obligation, the failure of Respondent to make complete and timely application for any required approval or permit, and non-attainment of the goals, standards, and requirements of this Order.

2. Respondent shall notify the Department in writing within five (5) Days of the onset of any Force Majeure Event. Failure to give such notice within such five (5) Day period constitutes a waiver of any claim that a delay is not subject to penalties. Respondent shall be deemed to know of any circumstance which it, any entity controlled by it, or its contractors knew or should have known.

3. Respondent shall have the burden of proving by a preponderance of the evidence that (i) the delay or anticipated delay has been or will be caused by a Force Majeure Event; (ii) the duration of the delay or the extension sought is warranted under the circumstances; (iii) best efforts were exercised to avoid and mitigate the effects of the delay; and (iv) Respondent complied with the requirements of Subparagraph IV.B.2 regarding timely notification.

4. If the Department agrees that the delay or anticipated delay is attributable to a Force Majeure Event, the time for performance of the obligations that are affected by the Force Majeure Event shall be extended for a period of time equivalent to the time lost because of the Force majuere event, in accordance with 375-1.5(4).

5. If the Department rejects Respondent's assertion that an event provides a defense to non-compliance with this Order pursuant to Subparagraph IV.B, Respondent shall be in violation of this Order unless it invokes dispute resolution pursuant to Paragraph XV and Respondent's position prevails.

V. Entry upon Site

A. Respondent hereby consents, upon reasonable notice under the circumstances presented, to entry upon the Site (or areas in the vicinity of the Site which may be under the control of Respondent) by any duly designated officer or employee of the Department or any State agency having jurisdiction with respect to matters addressed pursuant to this Order, and by any agent, consultant, contractor, or other person so authorized by the Commissioner, all of whom shall abide by the health and safety rules in effect for the Site, for inspecting, sampling, copying records related to the contamination at the Site, testing, and any other activities necessary to ensure Respondent's compliance with this Order. Upon request, Respondent shall (i) provide the Department with suitable work space at the Site, including access to a telephone, to the extent available, and (ii) permit the Department full access to all non-privileged records relating to matters addressed by this Order. Raw data is not considered privileged and that portion of any privileged document containing raw data must be provided to the Department. In the event Respondent is unable to obtain any authorization from third-party property owners necessary to perform its obligations under this Order, the Department may, consistent with its legal authority, assist in obtaining such authorizations.

B. The Department shall have the right to take its own samples and scientific measurements and the Department and Respondent shall each have the right to obtain split samples, duplicate samples, or both, of all substances and materials sampled. The Department shall make the results of any such sampling and scientific measurements available to Respondent.

VI. Payment of State Costs

A. Within forty-five (45) days after receipt of an itemized invoice from the Department,

Respondent shall pay to the Department a sum of money which shall represent reimbursement for State Costs as provided by 6 NYCRR 375-1.5 (b)(3)(i). Failure to timely pay any invoice will be subject to late payment charge and interest at a rate of 9% from the date the payment is due until the date the payment is made.

B. Costs shall be documented as provided by 6 NYCRR 375-1.5(b)(3). The Department shall not be required to provide any other documentation of costs, provided however, that the Department's records shall be available consistent with, and in accordance with, Article 6 of the Public Officers Law.

C. Each such payment shall be made payable to the New York State Department of Environmental Conservation and shall be sent to:

Director, Bureau of Program Management
Division of Environmental Remediation
New York State Department of
Environmental Conservation
625 Broadway
Albany, New York 12233-7012

D. The Department shall provide written notification to the Respondent of any change in the foregoing addresses.

E. If Respondent objects to any invoiced costs under this Order, the provisions of 6 NYCRR 375-1.5 (b)(3)(v) and (vi) shall apply. Objections shall be sent to the Department as provided under subparagraph VI.C above.

F. In the event of non-payment of any invoice within the 45 days provided herein, the Department may seek enforcement of this provision pursuant to Paragraph IV or the Department may commence an enforcement action for non-compliance with ECL '27-1423 and ECL 71-4003.

VII. Release and Covenant Not to Sue

Upon the Department's issuance of a Certificate of Completion as provided at 6 NYCRR 375-1.9 and 375-2.9, Respondent shall obtain the benefits conferred by such provisions, subject to the terms and conditions described therein.

VIII. Reservation of Rights

A. Except as provided at 6 NYCRR 375-1.9 and 375-2.9, nothing contained in this Order shall be construed as barring, diminishing, adjudicating, or in any way affecting any of the Department's rights or authorities, including, but not limited to, the right to require performance of further investigations and/or response action(s), to recover natural resource damages, and/or to exercise any summary abatement powers with respect to any person, including Respondent.

B. Except as otherwise provided in this Order, Respondent specifically reserves all rights and defenses under applicable law respecting any Departmental assertion of remedial liability and/or natural resource damages against Respondent, and further reserves all rights respecting the enforcement of this Order, including the rights to notice, to be heard, to appeal, and to any other due process. The existence of this Order or Respondent's compliance with it shall not be construed as an admission of liability, fault, wrongdoing, or breach of standard of care by Respondent, and shall not give rise to any presumption of law or finding of fact, or create any rights, or grant any cause of action, which shall inure to the benefit of any third party. Further, Respondent reserves such rights as it may have to seek and obtain contribution, indemnification, and/or any other form of recovery from its insurers and from other potentially responsible parties or their insurers for past or future response and/or cleanup costs or such other costs or damages arising from the contamination at the Site as may be provided by law, including but not limited to rights of contribution under section 113(f)(3)(B) of CERCLA, 42 U.S.C. § 9613(f)(3)(B).

IX. Indemnification

Respondent shall indemnify and hold the Department, the State of New York, the Trustee of the State's natural resources, and their representatives and employees harmless as provided by 6 NYCRR 375-2.5(a)(3)(i).

X. Public Notice

A. Within thirty (30) Days after the effective date of this Order, Respondent shall provide

notice as required by 6 NYCRR 375-1.5(a). Within sixty (60) Days of such filing, Respondent shall provide the Department with a copy of such instrument certified by the recording officer to be a true and faithful copy.

B. If Respondent proposes to transfer by sale or lease the whole or any part of Respondent's interest in the Site, or becomes aware of such transfer, Respondent shall, not fewer than forty-five (45) Days before the date of transfer, or within forty-five (45) Days after becoming aware of such conveyance, notify the Department in writing of the identity of the transferee and of the nature and proposed or actual date of the conveyance, and shall notify the transferee in writing, with a copy to the Department, of the applicability of this Order. However, such obligation shall not extend to a conveyance by means of a corporate reorganization or merger or the granting of any rights under any mortgage, deed, trust, assignment, judgment, lien, pledge, security agreement, lease, or any other right accruing to a person not affiliated with Respondent to secure the repayment of money or the performance of a duty or obligation.

XI. Change of Use

Applicant shall notify the Department at least sixty (60) days in advance of any change of use, as defined in 6 NYCRR 375-2.2(a), which is proposed for the Site, in accordance with the provisions of 6 NYCRR 375-1.11(d). In the event the Department determines that the proposed change of use is prohibited, the Department shall notify Applicant of such determination within forty-five (45) days of receipt of such notice.

XII. Environmental Easement

A. If a Record of Decision for the Site relies upon one or more institutional and/or engineering controls, Respondent (or the owner of the Site) shall submit to the Department for approval an Environmental Easement to run with the land in favor of the State which complies with the requirements of ECL Article 71, Title 36, and 6 NYCRR 375-1.8(h)(2). Upon acceptance of the Environmental Easement by the State, Respondent shall comply with the requirements of 6 NYCRR 375-1.8(h)(2).

B. If the ROD provides for no action other than implementation of one or more institutional controls, Respondent shall cause an environmental easement to be recorded under the provisions of Subparagraph XII.A.

C. If Respondent does not cause such environmental easement to be recorded in accordance with 6 NYCRR 375-1.8(h)(2), Respondent will not be entitled to the benefits conferred by 6 NYCRR 375-1.9 and 375-2.9 and the Department may file an Environmental Notice on the site.

XIII. Progress Reports

Respondent shall submit a written progress report of its actions under this Order to the parties identified in Subparagraph IV.A.1 of the Order by the 10th day of each month commencing with the month subsequent to the approval of the first Work Plan and ending with the Termination date as set forth in Paragraph XIV, unless a different frequency is set forth in a Work Plan. Such reports shall, at a minimum, include: all actions relative to the Site during the previous reporting period and those anticipated for the next reporting period; all approved activity modifications (changes of work scope and/or schedule); all results of sampling and tests and all other data received or generated by or on behalf of Respondent in connection with this Site, whether under this Order or otherwise, in the previous reporting period, including quality assurance/quality control information; information regarding percentage of completion; unresolved delays encountered or anticipated that may affect the future schedule and efforts made to mitigate such delays; and information regarding activities undertaken in support of the Citizen Participation Plan during the previous reporting period and those anticipated for the next reporting period.

XIV. Termination of Order

A. This Order will terminate upon the earlier of the following events:

1. Respondent's election in accordance with Paragraph III.E.2 not to implement the remedial activities required pursuant to the ROD. In the event of termination

in accordance with this Subparagraph, this Order shall terminate effective the 5th Day after the Department's receipt of the written notification, provided, however, that if there are one or more Work Plan(s) for which a final report has not been approved at the time of Respondent's notification of its election not to implement the remedial activities in accordance with the ROD, Respondent shall complete the activities required by such previously approved Work Plan(s) consistent with the schedules contained therein. Thereafter, this Order shall terminate effective the 5th Day after the Department's approval of the final report for all previously approved Work Plans; or

2. The Department's written determination that Respondent has completed all phases of the Remedial Program (including Site Management), in which event the termination shall be effective on the 5th Day after the date of the Department's letter stating that all phases of the remedial program have been completed.

B. Notwithstanding the foregoing, the provisions contained in Paragraphs VI and IX shall survive the termination of this Order and any violation of such surviving Paragraphs shall be a violation of this Order, the ECL, and 6 NYCRR 375-2.11(a)(4), subjecting Respondent to penalties as provided under Paragraph IV so long as such obligations accrued on or prior to the Termination Date.

C. If the Order is terminated pursuant to Subparagraph XIV.A.1, neither this Order nor its termination shall affect any liability of Respondent for remediation of the Site and/or for payment of State Costs, including implementation of removal and remedial actions, interest, enforcement, and any and all other response costs as defined under CERCLA, nor shall it affect any defenses to such liability that may be asserted by Respondent. Respondent shall also ensure that it does not leave the Site in a condition, from the perspective of human health and environmental protection, worse than that which existed before any activities under this Order were commenced. Further, the Department's efforts in obtaining and overseeing compliance with this Order shall constitute reasonable efforts under law to obtain a voluntary commitment from Respondent for any further activities to be undertaken as part of a Remedial Program for the Site.

XV. Dispute Resolution

A. In the event disputes arise under this Order, Respondent may, within fifteen (15) Days after Respondent knew or should have known of the facts which are the basis of the dispute, initiate dispute resolution in accordance with the provisions of 6 NYCRR 375-1.5(b)(2).

B. All cost incurred by the Department associated with dispute resolution are State costs subject to reimbursement pursuant to this Order.

C. Nothing contained in this Order shall be construed to authorize Respondent to invoke dispute resolution with respect to the remedy selected by the Department in the ROD or any element of such remedy, nor to impair any right of Respondent to seek judicial review of the Department's selection of any remedy.

XVI. Miscellaneous

A. Respondent agrees to comply with and be bound by the provisions of 6 NYCRR Subparts 375-1 and 375-2; the provisions of such Subparts that are referenced herein are referenced for clarity and convenience only and the failure of this Order to specifically reference any particular regulatory provision is not intended to imply that such provision is not applicable to activities performed under this Order.

B. The Department may exempt Respondent from the requirement to obtain any state or local permit or other authorization for any activity conducted pursuant to this Order in accordance with 6 NYCRR 375-1.12(b), (c), and (d).

C. 1. Respondent shall use best efforts to obtain all Site access, permits, easements, approvals, institutional controls, and/or authorizations necessary to perform Respondent's obligations under this Order, including all Department-approved Work Plans and the schedules contained therein. If, despite Respondent's best efforts, any access, permits, easements, approvals, institutional controls, or authorizations cannot be obtained, Respondent

shall promptly notify the Department and include a summary of the steps taken. The Department may, as it deems appropriate and within its authority, assist Respondent in obtaining same.

2. If an interest in property is needed to implement an institutional control required by a Work Plan and such interest cannot be obtained, the Department may require Respondent to modify the Work Plan pursuant to 6 NYCRR 375-1.6(d)(3) to reflect changes necessitated by Respondent's inability to obtain such interest.

D. The paragraph headings set forth in this Order are included for convenience of reference only and shall be disregarded in the construction and interpretation of any provisions of this Order.

E. 1. The terms of this Order shall constitute the complete and entire agreement between the Department and Respondent concerning the implementation of the activities required by this Order. No term, condition, understanding, or agreement purporting to modify or vary any term of this Order shall be binding unless made in writing and subscribed by the party to be bound. No informal advice, guidance, suggestion, or comment by the Department shall be construed as relieving Respondent of Respondent's obligation to obtain such formal approvals as may be required by this Order. In the event of a conflict between the terms of this Order and any Work Plan submitted pursuant to this Order, the terms of this Order shall control over the terms of the Work Plan(s). Respondent consents to and agrees not to contest the authority and jurisdiction of the Department to enter into or enforce this Order.

2. i. Except as set forth herein, if Respondent desires that any provision of this Order be changed, Respondent shall make timely written application to the Commissioner with copies to the parties listed in Subparagraph IV.A.1.

ii. If Respondent seeks to modify an approved Work Plan, a written request shall be made to the Department's project manager, with copies to the parties listed in Subparagraph IV.A.1.

iii. Requests for a change to a time frame set forth in this Order shall be made in writing to the Department's project attorney and project manager; such requests shall not be unreasonably denied and a written response to such requests shall be sent to Respondent promptly.

F. 1. If there are multiple parties signing this Order, the term "Respondent" shall be read in the plural, the obligations of each such party under this Order are joint and several, and the insolvency of or failure by any Respondent to implement any obligations under this Order shall not affect the obligations of the remaining Respondent(s) under this Order.

2. If Respondent is a partnership, the obligations of all general partners (including limited partners who act as general partners) under this Order are joint and several and the insolvency or failure of any general partner to implement any obligations under this Order shall not affect the obligations of the remaining partner(s) under this Order.

3. Notwithstanding the foregoing Subparagraphs XVI.F.1 and 2, if multiple parties sign this Order as Respondents but not all of the signing parties elect to implement a Work Plan, all Respondents are jointly and severally liable for each and every obligation under this Order through the completion of activities in such Work Plan that all such parties consented to; thereafter, only those Respondents electing to perform additional work shall be jointly and severally liable under this Order for the obligations and activities under such additional Work Plan(s). The parties electing not to implement the additional Work Plan(s) shall have no obligations under this Order relative to the activities set forth in such Work Plan(s). Further, only those Respondents electing to implement such additional Work Plan(s) shall be eligible to receive the release and covenant not to sue referenced in Paragraph VII.

G. Respondent shall be entitled to receive contribution protection and/or to seek contribution to the extent authorized by ECL 27-1421(6) and 6 NYCRR 375-1.5(b)(5).

H. Unless otherwise expressly provided herein, terms used in this Order which are

defined in ECL Article 27 or in regulations promulgated thereunder shall have the meaning assigned to them under said statute or regulations.

I. Respondent's obligations under this Order represent payment for or reimbursement of response costs, and shall not be deemed to constitute any type of fine or penalty.

J. Respondent and Respondent's successors and assigns shall be bound by this Order. Any change in ownership or corporate status of Respondent shall in no way alter Respondent's responsibilities under this Order.

K. This Order may be executed for the convenience of the parties hereto, individually or in combination, in one or more counterparts, each of which shall be deemed to have the status of an executed original and all of which shall together constitute one and the same.

APPENDIX B – ENVIRONMENTAL EASEMENT – JULY 2019

COPY

BOX 374
(DPF)

County: Erie Site No: 915143 Order on Consent Index : B9-0314-90-01

FILED
JUL 29 2019
ERIE COUNTY
CLERK'S OFFICE

ENVIRONMENTAL EASEMENT GRANTED PURSUANT TO ARTICLE 71, TITLE 36 OF THE NEW YORK STATE ENVIRONMENTAL CONSERVATION LAW

THIS INDENTURE made this 17th day of July, 2019 between Owner(s) 780 Ellicott Street, LLC, having an office at 333 Ganson Street, Buffalo, New York 14203, County of Erie, State of New York (the "Grantor"), and The People of the State of New York (the "Grantee"), acting through their Commissioner of the Department of Environmental Conservation (the "Commissioner", or "NYSDEC" or "Department" as the context requires) with its headquarters located at 625 Broadway, Albany, New York 12233,

WHEREAS, the Legislature of the State of New York has declared that it is in the public interest to encourage the remediation of abandoned and likely contaminated properties ("sites") that threaten the health and vitality of the communities they burden while at the same time ensuring the protection of public health and the environment; and

WHEREAS, the Legislature of the State of New York has declared that it is in the public interest to establish within the Department a statutory environmental remediation program that includes the use of Environmental Easements as an enforceable means of ensuring the performance of operation, maintenance, and/or monitoring requirements and the restriction of future uses of the land, when an environmental remediation project leaves residual contamination at levels that have been determined to be safe for a specific use, but not all uses, or which includes engineered structures that must be maintained or protected against damage to perform properly and be effective, or which requires groundwater use or soil management restrictions; and

WHEREAS, the Legislature of the State of New York has declared that Environmental Easement shall mean an interest in real property, created under and subject to the provisions of Article 71, Title 36 of the New York State Environmental Conservation Law ("ECL") which contains a use restriction and/or a prohibition on the use of land in a manner inconsistent with engineering controls which are intended to ensure the long term effectiveness of a site remedial program or eliminate potential exposure pathways to hazardous waste or petroleum; and

WHEREAS, Grantor, is the owner of real property located at the address of 980 Ellicott Street in the City of Buffalo, County of Erie and State of New York, known and designated on the tax map of the County Clerk of Erie as tax map parcel numbers: Section 100.63 Block 3 Lot 37, being a portion of the property conveyed to Grantor by deed dated November 8, 2016 and recorded in the Erie County Clerk's Office in Liber and Page 11304/8864. The property subject to this Environmental Easement (the "Controlled Property") comprises approximately 0.533 +/- acres, and is hereinafter more fully described in the Land Title Survey dated July 12, 2017 and last revised April 8, 2019 prepared by Kenneth L. Slaugenhoupt, LLS of Niagara Boundary and Mapping Services, which will be attached to the Site Management Plan. The Controlled Property description is set forth in and attached hereto as Schedule A; and

WHEREAS, the Department accepts this Environmental Easement in order to ensure the protection of public health and the environment and to achieve the requirements for remediation established for the Controlled Property until such time as this Environmental Easement is

extinguished pursuant to ECL Article 71, Title 36; and

NOW THEREFORE, in consideration of the mutual covenants contained herein and the terms and conditions of Order on Consent Index Number: B9-0314-90-01, Grantor conveys to Grantee a permanent Environmental Easement pursuant to ECL Article 71, Title 36 in, on, over, under, and upon the Controlled Property as more fully described herein ("Environmental Easement").

1. Purposes. Grantor and Grantee acknowledge that the Purposes of this Environmental Easement are: to convey to Grantee real property rights and interests that will run with the land in perpetuity in order to provide an effective and enforceable means of encouraging the reuse and redevelopment of this Controlled Property at a level that has been determined to be safe for a specific use while ensuring the performance of operation, maintenance, and/or monitoring requirements; and to ensure the restriction of future uses of the land that are inconsistent with the above-stated purpose.

2. Institutional and Engineering Controls. The controls and requirements listed in the Department approved Site Management Plan ("SMP") including any and all Department approved amendments to the SMP are incorporated into and made part of this Environmental Easement. These controls and requirements apply to the use of the Controlled Property, run with the land, are binding on the Grantor and the Grantor's successors and assigns, and are enforceable in law or equity against any owner of the Controlled Property, any lessees and any person using the Controlled Property.

A. (1) The Controlled Property may be used for:

Commercial as described in 6 NYCRR Part 375-1.8(g)(2)(iii) and Industrial as described in 6 NYCRR Part 375-1.8(g)(2)(iv)

(2) All Engineering Controls must be operated and maintained as specified in the Site Management Plan (SMP);

(3) All Engineering Controls must be inspected at a frequency and in a manner defined in the SMP;

(4) The use of groundwater underlying the property is prohibited without necessary water quality treatment as determined by the NYSDOH or the Erie County Department of Health to render it safe for use as drinking water or for industrial purposes, and the user must first notify and obtain written approval to do so from the Department;

(5) Groundwater and other environmental or public health monitoring must be performed as defined in the SMP;

(6) Data and information pertinent to Site Management of the Controlled Property must be reported at the frequency and in a manner defined in the SMP;

(7) All future activities on the property that will disturb remaining contaminated material must be conducted in accordance with the SMP;

(8) Monitoring to assess the performance and effectiveness of the remedy must be performed as defined in the SMP;

(9) Operation, maintenance, monitoring, inspection, and reporting of any mechanical or physical components of the remedy shall be performed as defined in the SMP;

(10) Access to the site must be provided to agents, employees or other representatives of the State of New York with reasonable prior notice to the property owner to assure compliance with the restrictions identified by this Environmental Easement.

B. The Controlled Property shall not be used for Residential or Restricted Residential purposes as defined in 6NYCRR 375-1.8(g)(2)(i) and (ii), and the above-stated engineering controls may not be discontinued without an amendment or extinguishment of this Environmental Easement.

C. The SMP describes obligations that the Grantor assumes on behalf of Grantor, its successors and assigns. The Grantor's assumption of the obligations contained in the SMP which may include sampling, monitoring, and/or operating a treatment system, and providing certified reports to the NYSDEC, is and remains a fundamental element of the Department's determination that the Controlled Property is safe for a specific use, but not all uses. The SMP may be modified in accordance with the Department's statutory and regulatory authority. The Grantor and all successors and assigns, assume the burden of complying with the SMP and obtaining an up-to-date version of the SMP from:

Site Control Section
Division of Environmental Remediation
NYSDEC
625 Broadway
Albany, New York 12233
Phone: (518) 402-9553

D. Grantor must provide all persons who acquire any interest in the Controlled Property a true and complete copy of the SMP that the Department approves for the Controlled Property and all Department-approved amendments to that SMP.

E. Grantor covenants and agrees that until such time as the Environmental Easement is extinguished in accordance with the requirements of ECL Article 71, Title 36 of the ECL, the property deed and all subsequent instruments of conveyance relating to the Controlled Property shall state in at least fifteen-point bold-faced type:

This property is subject to an Environmental Easement held by the New York State Department of Environmental Conservation pursuant to Title 36 of Article 71 of the Environmental Conservation

Law.

F. Grantor covenants and agrees that this Environmental Easement shall be incorporated in full or by reference in any leases, licenses, or other instruments granting a right to use the Controlled Property.

G. Grantor covenants and agrees that it shall, at such time as NYSDEC may require, submit to NYSDEC a written statement by an expert the NYSDEC may find acceptable certifying under penalty of perjury, in such form and manner as the Department may require, that:

(1) the inspection of the site to confirm the effectiveness of the institutional and engineering controls required by the remedial program was performed under the direction of the individual set forth at 6 NYCRR Part 375-1.8(h)(3).

(2) the institutional controls and/or engineering controls employed at such site:

(i) are in-place;

(ii) are unchanged from the previous certification, or that any identified changes to the controls employed were approved by the NYSDEC and that all controls are in the Department-approved format; and

(iii) that nothing has occurred that would impair the ability of such control to protect the public health and environment;

(3) the owner will continue to allow access to such real property to evaluate the continued maintenance of such controls;

(4) nothing has occurred that would constitute a violation or failure to comply with any site management plan for such controls;

(5) the report and all attachments were prepared under the direction of, and reviewed by, the party making the certification;

(6) to the best of his/her knowledge and belief, the work and conclusions described in this certification are in accordance with the requirements of the site remedial program, and generally accepted engineering practices; and

(7) the information presented is accurate and complete.

3. Right to Enter and Inspect. Grantee, its agents, employees, or other representatives of the State may enter and inspect the Controlled Property in a reasonable manner and at reasonable times to assure compliance with the above-stated restrictions.

4. Reserved Grantor's Rights. Grantor reserves for itself, its assigns, representatives, and successors in interest with respect to the Property, all rights as fee owner of the Property, including:

A. Use of the Controlled Property for all purposes not inconsistent with, or limited by the terms of this Environmental Easement;

B. The right to give, sell, assign, or otherwise transfer part or all of the underlying fee interest to the Controlled Property, subject and subordinate to this Environmental Easement;

5. Enforcement

A. This Environmental Easement is enforceable in law or equity in perpetuity by Grantor, Grantee, or any affected local government, as defined in ECL Section 71-3603, against

the owner of the Property, any lessees, and any person using the land. Enforcement shall not be defeated because of any subsequent adverse possession, laches, estoppel, or waiver. It is not a defense in any action to enforce this Environmental Easement that: it is not appurtenant to an interest in real property; it is not of a character that has been recognized traditionally at common law; it imposes a negative burden; it imposes affirmative obligations upon the owner of any interest in the burdened property; the benefit does not touch or concern real property; there is no privity of estate or of contract; or it imposes an unreasonable restraint on alienation.

B. If any person violates this Environmental Easement, the Grantee may revoke the Certificate of Completion with respect to the Controlled Property.

C. Grantee shall notify Grantor of a breach or suspected breach of any of the terms of this Environmental Easement. Such notice shall set forth how Grantor can cure such breach or suspected breach and give Grantor a reasonable amount of time from the date of receipt of notice in which to cure. At the expiration of such period of time to cure, or any extensions granted by Grantee, the Grantee shall notify Grantor of any failure to adequately cure the breach or suspected breach, and Grantee may take any other appropriate action reasonably necessary to remedy any breach of this Environmental Easement, including the commencement of any proceedings in accordance with applicable law.

D. The failure of Grantee to enforce any of the terms contained herein shall not be deemed a waiver of any such term nor bar any enforcement rights.

6. Notice. Whenever notice to the Grantee (other than the annual certification) or approval from the Grantee is required, the Party providing such notice or seeking such approval shall identify the Controlled Property by referencing the following information:

County, NYSDEC Site Number, NYSDEC Brownfield Cleanup Agreement, State Assistance Contract or Order Number, and the County tax map number or the Liber and Page or computerized system identification number.

Parties shall address correspondence to:

Site Number: 915143
Office of General Counsel
NYSDEC
625 Broadway
Albany New York 12233-5500

With a copy to:

Site Control Section
Division of Environmental Remediation
NYSDEC
625 Broadway
Albany, NY 12233

All notices and correspondence shall be delivered by hand, by registered mail or by Certified mail and return receipt requested. The Parties may provide for other means of receiving and communicating notices and responses to requests for approval.

7. Recordation. Grantor shall record this instrument, within thirty (30) days of execution of this instrument by the Commissioner or her/his authorized representative in the office of the

recording officer for the county or counties where the Property is situated in the manner prescribed by Article 9 of the Real Property Law.

8. Amendment. Any amendment to this Environmental Easement may only be executed by the Commissioner of the New York State Department of Environmental Conservation or the Commissioner's Designee, and filed with the office of the recording officer for the county or counties where the Property is situated in the manner prescribed by Article 9 of the Real Property Law.

9. Extinguishment. This Environmental Easement may be extinguished only by a release by the Commissioner of the New York State Department of Environmental Conservation, or the Commissioner's Designee, and filed with the office of the recording officer for the county or counties where the Property is situated in the manner prescribed by Article 9 of the Real Property Law.

10. Joint Obligation. If there are two or more parties identified as Grantor herein, the obligations imposed by this instrument upon them shall be joint and several.

11. Consistency with the SMP. To the extent there is any conflict or inconsistency between the terms of this Environmental Easement and the SMP, regarding matters specifically addressed by the SMP, the terms of the SMP will control.

Remainder of Page Intentionally Left Blank

IN WITNESS WHEREOF, Grantor has caused this instrument to be signed in its name.

780 Ellicott Street, LLC:

By: _____

Print Name: Jon M. Williams

Title: Manager Date: 6/24/19

Grantor's Acknowledgment

STATE OF NEW YORK)
) ss:
COUNTY OF Erie)

On the 24th day of June, in the year 20 19, before me, the undersigned, personally appeared Jon M. Williams, personally known to me or proved to me on the basis of satisfactory evidence to be the individual(s) whose name is (are) subscribed to the within instrument and acknowledged to me that he/she/they executed the same in his/her/their capacity(ies), and that by his/her/their signature(s) on the instrument, the individual(s), or the person upon behalf of which the individual(s) acted, executed the instrument.

Nancy L. Mazur
Notary Public - State of New York

NANCY L. MAZUR
Notary Public, State of New York
Qualified in Erie County No. 1765930
My Commission Expires 11 30, 2021

THIS ENVIRONMENTAL EASEMENT IS HEREBY ACCEPTED BY THE PEOPLE OF THE STATE OF NEW YORK, Acting by and Through the Department of Environmental Conservation as Designee of the Commissioner,

By: _____
Michael J. Ryan, Director
Division of Environmental Remediation

Grantee's Acknowledgment

STATE OF NEW YORK)
) ss:
COUNTY OF ALBANY)

On the 17th day of July, in the year 2019 before me, the undersigned, personally appeared Michael J. Ryan, personally known to me or proved to me on the basis of satisfactory evidence to be the individual(s) whose name is (are) subscribed to the within instrument and acknowledged to me that he/she/ executed the same in his/her/ capacity as Designee of the Commissioner of the State of New York Department of Environmental Conservation, and that by his/her/ signature on the instrument, the individual, or the person upon behalf of which the individual acted, executed the instrument.

_____
Notary Public - State of New York

David J. Chiusano
Notary Public, State of New York
No. 01CH5032146
Qualified in Schenectady County
Commission Expires August 22, 2022

SCHEDULE "A" PROPERTY DESCRIPTION

ENVIRONMENTAL EASEMENT DESCRIPTION

ALL THAT TRACT OR PARCEL OF LAND, situate in the City of Buffalo, County of Erie, State of New York, being part of Lot No. 31, Township 11, Range 8 of the Holland Land Company's Survey, and more particularly bounded and described as follows:

BEGINNING at a point in the westerly line of Ellicott Street, distant 148.05 feet northerly from the point of intersection of the westerly line of Ellicott Street with the northerly line of Best Street;

Thence N 89°03'07" W a distance of 200.59 feet to a point;

Thence N 13°40'13" E a distance of 50.00 feet to a point;

Thence N 89°03'07" W a distance of 30.00 feet to a point;

Thence N 13°40'13" E a distance of 49.99 feet to a point;

Thence S 89°03'07" E a distance of 49.00 feet to a point;

Thence N 13°40'13" E a distance of 7.00 feet to a point;

Thence S 76°19'47" E a distance of 9.00 feet to a point;

Thence N 11°51'01" E a distance of 47.88 feet to a point;

Thence S 78°00'20" E a distance of 39.32 feet to a point;

Thence S 39°59'19" W a distance of 8.65 feet to a point;

Thence S 14°01'09" W a distance of 35.44 feet to a point;

Thence S 89°02'44" E a distance of 137.78 feet to a point in the westerly line of Ellicott Street;

Thence along the westerly line of Ellicott Street, S 13°40'13" W a distance of 103.14 feet and the POINT OR PLACE OF BEGINNING.

The above described parcel contains ± 0.533 acres (23,234 sq. ft.)

Notes:

1) North as Shown on this Map is True North at 78°35' Meridian of West Longitude, as established by GPS Static Survey:

- Control Point 1 Set Pin & Cap N. 1058634.40, E. 1072194.08
- Opus X90D GPS Receiver Serial No. 038705
- Static GPS Observations July 8, 2017
- New York State Plane Coordinates West Zone (3103)
- NAD_83 (2011)(EPOCH:2010.0000)

Base Stations used:

PID	DESIGNATION	LATITUDE	LONGITUDE	DISTANCE (m)
DF5379	PWEL PORT WELLER CORS APR	N431412.202	W0791310.777	46693.3
DI0444	NYBT BATAVIA CORS ARP	N425917.960	W0780720.375	61503.6
D10596	NYLP LOCKPORT CORS ARP	N430954.854	W0784513.356	30343.4

Linear Unit - U.S. Survey Foot. Combined scale factor: 0.99991841. All dimensions shown are Ground.

Bearings as shown on this map are referenced to the record bearings as described in Deed filed in the Erie County Clerk's Office in Liber 11304 of deeds at page 8864. The cad file is on New York State Plane Coordinates however the labeled bearings are not.

2) Elevations as shown on this Map are based on NAVD88 Datum. Site Benchmark: as observed by static GPS observation on Pin & Cap 4 is 653.42 (+/- 0.04' {NAVD88 (Computed using Geoid12B)}.

3) Utilities as shown on this map are plotted from field locations of visible structures and information provided by others. Niagara Boundary & Mapping Services, along with the undersigned Land Surveyor assumes no responsibility as to the accuracy of underground utilities. Contractor must call UFPO three working days prior to any excavation construction activities.

4) Contour interval is 1.0' Foot

5) Elevations present in Cad file are turned off for plotting clarity.

6) Map references:

- Survey of Part of Lot-31, Twp.-11, R.-8, Holland Purchaser, City of Buffalo, County Of Erie, by McIntosh & McIntosh, PC. Job No. 7861 dated September 27, 2010.
- Boundary Survey of 996, 980, 960 Ellicott Street, 31 Dodge, 28 Best and 1145 Main Street by Nussbaumer & Clarke, Inc. Job No. 16j2-0929 dated September 23, 2016.

7) Premises is located in Zone X, Areas determined to be outside 500 year floodplain, as shown on Flood Insurance Rate Map (FIRM) City of Buffalo, County of Erie, Community panel No. 360230 0015 C map revised August 23, 1999

Legend

Abbreviations

- Ex = Existing
- E = East
- N = North
- W = West
- S = South
- R.O.W. = Right of Way
- A.K.A. = also known as
- EM Electric Meter
- Well Monitoring Well
- ELHH Electric Hand Hole
- Deciduous Tree
- Bush
- Coniferous Tree
- Electric Manhole
- NBMS 50349 Cap Detail

Symbols

- Sanitary Manhole
- CO Cleanout
- CB Catch Basin
- DI Drain Inlet
- Storm Manhole
- YD Yard Drain
- Cable TV
- Electric Riser
- Power Pole
- Guy Wire Anchor
- Telephone Riser
- HYD Fire Hydrant
- WV Water Valve
- WSV Water Service Valve
- Gas Line Marker
- GV Gas Valve
- GSV Gas Service Valve
- Sign
- MB Mailbox
- MP Metal Post
- Mon Concrete R.O.W. Monument
- Light Standard
- Telephone Manhole
- Bollard
- ICV Irrigation Control Valve

Line Styles

- SA Sanitary Sewer
- ST Storm Sewer
- W Water Line
- G Gas Line
- T Telephone Wires or Cables
- E Electric Wires or Cables
- OH Overhead Wires
- 100 Contour Line
- Centerline of Ditch
- Crown of Pavement
- Centerline of Road
- Right of Way Line
- Building Setback Line
- Easement Line
- Property Line
- UE Underground Electric
- Paint Stripe
- Former Boundary Parcel Line
- UCTV Underground Cable TV
- UFO Underground Fiber Optic

Niagara Boundary
And Mapping Services
761 Cayuga Street
Lewiston, NY 14092
(716) 297-9584
Fax (716) 297-9586
E-Mail KLSNBMS@AOL.COM

Map Showing Boundary Survey of

Inactive Hazardous Site

New York State Department of Environmental Conservation Site No. 915143

LOT	SECTION	TOWNSHIP	RANGE
31		11	8

City	Buffalo
COUNTY	Erie
STATE	New York
DATE	July 12, 2017
SCALE	1" = 20'
JOB NO.	9652-17
RESURVEYED	

Kenneth L. Slougenhoupt Lic. No. 50349

Legal Description
Inactive Hazardous Site

Niagara Boundary Job No. 9652-18

ALL THAT TRACT OR PARCEL OF LAND, situate in the City of Buffalo, County of Erie, State of New York, being part of Lot No. 31, Township 11, Range 8 of the Holland Land Company's Survey, and more particularly bounded and described as follows:

BEGINNING at a point in the westerly line of Ellicott Street, distant 148.05 feet northerly from the point of intersection of the westerly line of Ellicott Street with the northerly line of Best Street;

Thence N 89°03'07" W a distance of 200.59 feet to a point;

Thence N 13°40'13" E a distance of 50.00 feet to a point;

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Thence N 13°40'13" E a distance of 7.00 feet to a point;

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Thence N 11°51'01" E a distance of 47.88 feet to a point;

Thence S 78°00'20" E a distance of 39.32 feet to a point;

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Thence S 14°01'09" W a distance of 35.44 feet to a point;

Thence S 89°02'44" E a distance of 137.78 feet to a point in the westerly line of Ellicott Street;

Thence along the westerly line of Ellicott Street, S 13°40'13" W a distance of 103.14 feet and the POINT OR PLACE OF BEGINNING.

The above described parcel contains ± 0.533 acres (23234 sq. ft.)

APPENDIX C – LIST OF SITE CONTACTS

Name	Phone Number	E-mail Address
Owner 780 Ellicott Street, LLC Attn. Jon Williams	+1 716 856 3333	jmwilliams@oscinc.com
Remedial Party OSC, Inc. Attn. John Yensan	+1 716 856 3333	jyensan@oscinc.com
Professional Engineer Attn. John Black, P.E.	+1 571 217 6761	John.Black@InventumEng.com
NYSDEC Regional Hazardous Waste Engineer Chad Staniszewski	+1 716 851 7220	chad.staniszewski@dec.ny.gov
NYSDEC Project Manager Jaspal Walia **NYSDEC Site Control** Kelly A. Lewandowski, P.E	+1 716 851 7220 +1 518-402-9543	jaspal.walia@dec.ny.gov kelly.lewandowski@dec.ny.gov
Site Access Contact Attn. John Yensan	+1 716 856 3333	jyensan@oscinc.com
Remedial Party Attorney Phillips Lytle, LLP Attn. David Flynn	+1 716 847 5473	dflynn@phillipslytle.com

APPENDIX D – EXCAVATION WORK PLAN (EWP)

D-1 NOTIFICATION

At least 15 days prior to the start of any activity that is anticipated to encounter remaining contamination, the site owner or their representative will notify the NYSDEC. Table D-1 includes contact information for the above notification. The information on this table will be updated as necessary to provide accurate contact information. A full listing of site-related contact information is provided in Appendix C.

Table D-1: Notifications*

Name	Phone Number	E-mail Address
Office of General Counsel Attn. Jennifer Dougherty	+1 718 851 7194	Jennifer.dougherty@dec.ny.gov
NYSDEC Regional Hazardous Waste Engineer Chad Staniszewski	+1 716 851 7220	chad.staniszewski@dec.ny.gov
NYSDEC Project Manager Jaspal Walia	+1 716 851 7220	Jaspal.walia@dec.ny.gov
NYSDEC Site Control Kelly A. Lewandowski, P.E	+1 518-402-9543	kelly.lewandowski@dec.ny.gov
Site Access Contact Attn. John Yensan	+1 716 856 3333	jyensan@oscinc.com
Remedial Party Attorney Phillips Lytle, LLP Attn. David Flynn	+1 716 847 5473	dflynn@phillipslytle.com

* Note: Notifications are subject to change and will be updated as necessary.

This notification will include:

- A detailed description of the work to be performed, including the location and areal extent of excavation, plans/drawings for site re-grading, intrusive elements or utilities to be installed below the soil cover, estimated volumes of contaminated soil to be excavated and any work that may impact an engineering control;

- A summary of environmental conditions anticipated to be encountered in the work areas, including the nature and concentration levels of contaminants of concern, potential presence of grossly contaminated media, and plans for any pre-construction sampling;
- A schedule for the work, detailing the start and completion of all intrusive work;
- A summary of the applicable components of this EWP;
- A statement that the work will be performed in compliance with this EWP and 29 CFR 1910.120;
- A copy of the contractor's health and safety plan (HASP), in electronic format, if it differs from the HASP provided in Appendix J of this SMP;
- Identification of disposal facilities for potential waste streams; and
- Identification of sources of any anticipated backfill, along with all required chemical testing results.

D-2 SOIL SCREENING METHODS

Visual, olfactory and instrument-based (e.g. photoionization detector) soil screening will be performed by a qualified environmental professional during all excavations into known or potentially contaminated material (remaining contamination). Soil screening will be performed when invasive work is done and will include all excavation and invasive work performed during development, such as excavations for foundations and utility work, after issuance of the COC.

Soils will be segregated based on previous environmental data and screening results into material that requires off-site disposal and material that requires testing to determine if the material can be reused on-site as soil beneath a cover or if the material can be used as cover soil. Further discussion of off-site disposal of materials and on-site reuse is provided in Section D-7 of this Appendix.

D-3 SOIL STAGING METHODS

Soil stockpiles will be continuously encircled with a berm, mulch socks, and/or silt fence. Hay bales will be used as needed near catch basins, surface waters and other discharge points.

Stockpiles will be kept covered at all times with appropriately anchored tarps. Stockpiles will be routinely inspected, and damaged tarp covers will be promptly replaced.

Stockpiles will be inspected at a minimum once each week and after every storm event. Results of inspections will be recorded in a logbook and maintained at the site and available for inspection by the NYSDEC.

D-4 MATERIALS EXCAVATION AND LOAD-OUT

A qualified environmental professional or person under their supervision will oversee all invasive work and the excavation and load-out of all excavated material.

The owner of the property or remedial party and its contractors are responsible for safe execution of all invasive and other work performed under this Plan.

The presence of utilities and easements on the site will be investigated by the qualified environmental professional. It will be determined whether a risk or impediment to the planned work under this SMP is posed by utilities or easements on the site.

Loaded vehicles leaving the site will be appropriately lined, tarped, securely covered, manifested, and placarded in accordance with appropriate Federal, State, local, and NYSDOT requirements (and all other applicable transportation requirements).

A truck wash will be operated on-site, as appropriate. The qualified environmental professional will be responsible for ensuring that all outbound trucks will be washed at the truck wash before leaving the site until the activities performed under this section are complete Truck wash waters will be collected and disposed of off-site in an appropriate manner.

Locations where vehicles enter or exit the site shall be inspected daily for evidence of off-site soil tracking.

The qualified environmental professional will be responsible for ensuring that all egress points for truck and equipment transport from the site are clean of dirt and other materials derived from the site during intrusive excavation activities. Cleaning of the adjacent streets will be performed as needed to maintain a clean condition with respect to site-derived materials.

D-5 MATERIALS TRANSPORT OFF-SITE

All transport of materials will be performed by licensed haulers in accordance with appropriate local, State, and Federal regulations, including 6 NYCRR Part 364. Haulers will be appropriately licensed and trucks properly placarded.

Material transported by trucks exiting the site will be secured with tight-fitting covers. Loose-fitting canvas-type truck covers will be prohibited. If loads contain wet material capable of producing free liquid, truck liners will be used.

All trucks loaded with site materials will exit the vicinity of the site using only approved truck routes. The most appropriate route shall take into account: (a) limiting

transport through residential areas and past sensitive sites; (b) use of city mapped truck routes; (c) prohibiting off-site queuing of trucks entering the facility; (d) limiting total distance to major highways; (e) promoting safety in access to highways; and (f) overall safety in transport. The transportation route for excavated soils will be identified in the pre-excavation notification.

Trucks will be prohibited from stopping and idling in the neighborhood outside the project site.

Egress points for truck and equipment transport from the site will be kept clean of dirt and other materials during site remediation and development.

Queuing of trucks will be performed on-site in order to minimize off-site disturbance. Off-site queuing will be prohibited.

D-6 MATERIALS DISPOSAL OFF-SITE

All material excavated and removed from the site will be treated as contaminated and regulated material and will be transported and disposed in accordance with all local, State (including 6NYCRR Part 360) and Federal regulations. If disposal of material from this site is proposed for unregulated off-site disposal (i.e. clean soil removed for development purposes), a formal request with an associated plan will be made to the NYSDEC. Unregulated off-site management of materials from this site will not occur without formal NYSDEC approval.

Off-site disposal locations for excavated soils will be identified in the preexcavation notification. This will include estimated quantities and a breakdown by class of disposal facility if appropriate, i.e. hazardous waste disposal facility, solid waste landfill, petroleum treatment facility, C/D recycling facility, etc. Actual disposal quantities and associated documentation will be reported to the NYSDEC in the Periodic Review Report. This documentation will include: waste profiles, test results, facility acceptance letters, manifests, bills of lading and facility receipts.

Non-hazardous historic fill and contaminated soils taken off-site will be handled, at minimum, as a Municipal Solid Waste per 6NYCRR Part 360-1.2. Material that does not meet Unrestricted SCOs is prohibited from being taken to a New York State recycling facility (6NYCRR Part 360-16 Registration Facility).

D-7 MATERIALS REUSE ON-SITE

The qualified environmental professional will ensure that procedures defined for materials reuse in this SMP are followed and that unacceptable material does not remain on-site. Contaminated on-site material, including historic fill and contaminated soil, that is

acceptable for reuse on-site will be placed below a demarcation layer or impervious surface, and will not be reused within one foot of the proposed final ground surface, within landscaping berms, or as backfill for subsurface utility lines.

Any demolition material proposed for reuse on-site will be sampled for asbestos and the results will be reported to the NYSDEC for acceptance. Reuse of materials and concrete crushing or processing on-site will not be performed without prior NYSDEC approval. Organic matter (wood, roots, stumps, etc.) or other solid waste derived from clearing and grubbing of the site will not be reused on-site.

D-8 FLUIDS MANAGEMENT

All liquids to be removed from the site, including but not limited to, excavation dewatering, decontamination waters and groundwater monitoring well purge and development waters, will be handled, transported and disposed in accordance with applicable local, State, and Federal regulations. Dewatering, purge and development fluids will not be recharged back to the land surface or subsurface of the site, and will be managed off-site, unless prior approval is obtained from NYSDEC.

Discharge of water generated during large-scale construction activities to surface waters (i.e. a local pond, stream or river) will be performed only under a SPDES permit.

D-9 COVER SYSTEM RESTORATION

After the completion of soil removal and any other invasive activities the ground surface will be restored. The existing ground surface is comprised of asphalt pavement. The asphalt is not a cover system required by Order. If soils or crushed building materials are found to be suitable for reuse and subsequently used as fill in any excavation, they will be placed no closer than 12-inches below the final surface. If the excavation is for a utility that may require maintenance, clean fill shall be used over the utility. Any material to be reused at the site or imported material to the site must be approved by the Department.

D-10 BACKFILL FROM OFF-SITE SOURCES

All materials proposed for import onto the site will be approved by the qualified environmental professional and will be in compliance with provisions in this SMP prior to receipt at the site. A Request to Import/Reuse Fill or Soil form, which can be found at http://www.dec.ny.gov/regulations/67386.html, will be prepared and submitted to the NYSDEC project manager allowing a minimum of 5 business days for review. Any material to be imported to the site must be approved by the Department.

Material from industrial sites, spill sites, or other environmental remediation sites or potentially contaminated sites will not be imported to the site.

All imported soils will meet the backfill and cover soil quality standards established in 6NYCRR 375-6.7(d). Based on an evaluation of the land use, protection of groundwater and protection of ecological resources criteria, the resulting soil quality standards are listed in Table 375-6.8. Soils to be placed within 12 inches of the ground surface shall meet the Unrestricted Use Concentrations. Soils to be placed below 12-inches below ground surface shall meet the Commercial Use Concentrations. Soils that meet 'exempt' fill requirements under 6 NYCRR Part 360, but do not meet backfill or cover soil objectives for this site, will not be imported onto the site without prior approval by NYSDEC. Solid waste will not be imported onto the site.

Trucks entering the site with imported soils will be securely covered with tight fitting covers. Imported soils will be stockpiled separately from excavated materials and covered to prevent dust releases.

D-11 STORMWATER POLLUTION PREVENTION

Barriers and hay bale checks will be installed and inspected once a week and after every storm event. Results of inspections will be recorded in a logbook and maintained at the site and available for inspection by the NYSDEC. All necessary repairs shall be made immediately.

Accumulated sediments will be removed as required to keep the barrier and hay bale check functional.

All undercutting or erosion of the silt fence toe anchor shall be repaired immediately with appropriate backfill materials.

Manufacturer's recommendations will be followed for replacing silt fencing damaged due to weathering.

Erosion and sediment control measures identified in the SMP shall be observed to ensure that they are operating correctly. Where discharge locations or points are accessible, they shall be inspected to ascertain whether erosion control measures are effective in preventing significant impacts to receiving waters.

Silt fencing or hay bales will be installed around the entire perimeter of the construction area.

D-12 EXCAVATION CONTINGENCY PLAN

If underground tanks or other previously unidentified contaminant sources are found during post-remedial subsurface excavations or development related construction,

excavation activities will be suspended until sufficient equipment is mobilized to address the condition.

Sampling will be performed on product, sediment and surrounding soils, etc. as necessary to determine the nature of the material and proper disposal method. Chemical analysis will be performed for a full list of analytes (TAL metals; TCL volatiles and semi-volatiles, TCL pesticides and PCBs).

Identification of unknown or unexpected contaminated media identified by screening during invasive site work will be promptly communicated by phone to NYSDEC's Project Manager. Reportable quantities of petroleum product will also be reported to the NYSDEC spills hotline. These findings will be also included in the Periodic Review Report.

D-13 COMMUNITY AIR MONITORING PLAN

Any future ground intrusive work must include compliance with the health and safety plan (HASP, Appendix J) and this community air monitoring plan (CAMP). The DOH Generic Community Air Monitoring Plan (CAMP) shall be followed and will include real-time monitoring for volatile organic compounds (VOCs) and particulates (i.e., dust) at the downwind perimeter of each designated work area while soils are being excavated, stockpiled, loaded, or placed. The CAMP shall provide a measure of protection for the downwind community (i.e., off-site receptors including residences and businesses and on-site workers not directly involved with the subject work activities) from potential airborne contaminant releases as a direct result of investigative and remedial work activities. The action levels specified herein require increased monitoring, corrective actions to abate emissions, and/or work shutdown. Additionally, the CAMP shall confirm that work activities did not spread contamination off-site through the air.

The CAMP presented below will be sufficient to cover all but major excavation projects at the Site. Special requirements will be necessary for work within 20 feet of potentially exposed individuals or structures. These requirements should be determined in consultation with NYSDOH.

Reliance on the CAMP should not preclude simple, common-sense measures to keep VOCs, dust, and odors at a minimum around the work areas.

Community Air Monitoring Plan

Real-time air monitoring for VOCs and/or particulate levels at the perimeter of the exclusion zone or work area will be necessary. There are no known metals or radiological contamination posing a concern.

Continuous monitoring will be required for all ground intrusive activities and during the demolition of contaminated or potentially contaminated structures. Ground intrusive activities include, but are not limited to, soil excavation and handling, test pitting or trenching, and the installation of soil borings or monitoring wells.

Periodic monitoring for VOCs will be required during non-intrusive activities such as the collection of soil samples or the collection of groundwater samples from existing monitoring wells. Periodic monitoring during sample collection might reasonably consist of taking a reading upon arrival at a sample location, monitoring while opening a well cap or overturning soil, monitoring during well baling/purging, and taking a reading prior to leaving a sample location. In some instances, depending upon the proximity of potentially exposed individuals, continuous monitoring may be required during sampling activities. Examples of such situations include groundwater sampling at wells on the curb of Ellicott Street

VOC Monitoring, Response Levels, and Actions

Volatile organic compounds (VOCs) must be monitored at the downwind perimeter of the immediate work area (i.e., the exclusion zone) on a continuous basis or as otherwise specified. Upwind concentrations should be measured at the start of each workday and periodically thereafter to establish background conditions, particularly if wind direction changes. The monitoring work should be performed using equipment appropriate to measure the types of contaminants known or suspected to be present. The equipment should be calibrated at least daily for the contaminant(s) of concern or for an appropriate surrogate. The equipment should be capable of calculating 15-minute running average concentrations, which will be compared to the levels specified below.

1. If the ambient air concentration of total organic vapors at the downwind perimeter of the work area or exclusion zone exceeds 5 parts per million (ppm) above background for the 15-minute average, work activities must be temporarily halted and monitoring continued. If the total organic vapor level readily decreases (per instantaneous readings) below 5 ppm over background, work activities can resume with continued monitoring.

2. If total organic vapor levels at the downwind perimeter of the work area or exclusion zone persist at levels in excess of 5 ppm over background but less than 25 ppm, work activities must be halted, the source of vapors identified, corrective actions taken to abate emissions, and monitoring continued. After these steps, work activities can resume provided that the total organic vapor level 200 feet downwind of the exclusion zone or half the distance to the nearest potential receptor or residential/commercial structure, whichever is less - but in no case less than 20 feet, is below 5 ppm over background for the 15-minute average.

3. If the organic vapor level is above 25 ppm at the perimeter of the work area, activities must be shutdown.

4. All 15-minute readings must be recorded and be available for State (DEC and NYSDOH) personnel to review. Instantaneous readings, if any, used for decision purposes should also be recorded.

Particulate Monitoring, Response Levels, and Actions

Particulate concentrations should be monitored continuously at the upwind and downwind perimeters of the exclusion zone at temporary particulate monitoring stations.

The particulate monitoring should be performed using real-time monitoring equipment capable of measuring particulate matter less than 10 micrometers in size (PM-10) and capable of integrating over a period of 15 minutes (or less) for comparison to the airborne particulate action level. The equipment must be equipped with an audible alarm to indicate exceedance of the action level. In addition, fugitive dust migration should be visually assessed during all work activities.

1. If the downwind PM-10 particulate level is 100 micrograms per cubic meter (mcg/m3) greater than background (upwind perimeter) for the 15-minute period or if airborne dust is observed leaving the work area, then dust suppression techniques must be employed. Work may continue with dust suppression techniques provided that downwind PM-10 particulate levels do not exceed 150 mcg/m^3 above the upwind level and provided that no visible dust is migrating from the work area.

2. If, after implementation of dust suppression techniques, downwind PM-10 particulate levels are greater than 150 mcg/m^3 above the upwind level, work must be stopped, and a re-evaluation of activities initiated. Work can resume provided that dust suppression measures and other controls are successful in reducing the downwind PM-10 particulate concentration to within 150 mcg/m^3 of the upwind level and in preventing visible dust migration.

3. All readings must be recorded and be available for State (DEC and NYSDOH) and County Health personnel to review.

The locations of air sampling stations shall be based on generally prevailing wind conditions relative to any future excavation. These locations will be adjusted on a daily or more frequent basis based on actual wind directions to provide an upwind and at least two downwind monitoring stations.

Exceedances of action levels listed in the CAMP will be reported to NYSDEC and NYSDOH Project Managers.

D-14 ODOR CONTROL PLAN

This odor control plan is capable of controlling emissions of nuisance odors offsite. Specific odor control methods to be used on a routine basis will include; tarps, foam, or limiting the area of exposed soil. If nuisance odors are identified at the site boundary, or if odor complaints are received, work will be halted, and the source of odors will be identified and corrected. Work will not resume until all nuisance odors have been abated. NYSDEC and NYSDOH will be notified of all odor events and of any other complaints about the project. Implementation of all odor controls, including the halt of work, is the responsibility of the remedial party's Remediation Engineer, and any measures that are implemented will be discussed in the Periodic Review Report.

All necessary means will be employed to prevent on- and off-site nuisances. At a minimum, these measures will include: (a) limiting the area of open excavations and size of soil stockpiles; (b) shrouding open excavations with tarps and other covers; and (c) using foams to cover exposed odorous soils. If odors develop and cannot be otherwise controlled, additional means to eliminate odor nuisances will include: (d) direct load-out of soils to trucks for off-site disposal; (e) use of chemical odorants in spray or misting systems; and, (f) use of staff to monitor odors in surrounding neighborhoods.

If nuisance odors develop during intrusive work that cannot be corrected, or where the control of nuisance odors cannot otherwise be achieved due to on-site conditions or close proximity to sensitive receptors, odor control will be achieved by sheltering the excavation and handling areas in a temporary containment structure equipped with appropriate air venting/filtering systems.

D-15 DUST CONTROL PLAN

A dust suppression plan that addresses dust management during invasive on-site work will include, at a minimum, the items listed below:

- Dust suppression will be achieved through the use of a dedicated on-site water truck for road wetting. The truck will be equipped with a water cannon capable of spraying water directly onto off-road areas including excavations and stockpiles.
- Clearing and grubbing of larger sites will be done in stages to limit the area of exposed, unvegetated soils vulnerable to dust production.
- Gravel will be used on any unpaved roadways to provide a clean and dust-free road surface.
- On-site roads will be limited in total area to minimize the area required for water truck sprinkling.

D-16 OTHER NUISANCES

A plan for rodent control will be developed and utilized by the contractor prior to and during site clearing and site grubbing, and during all remedial work.

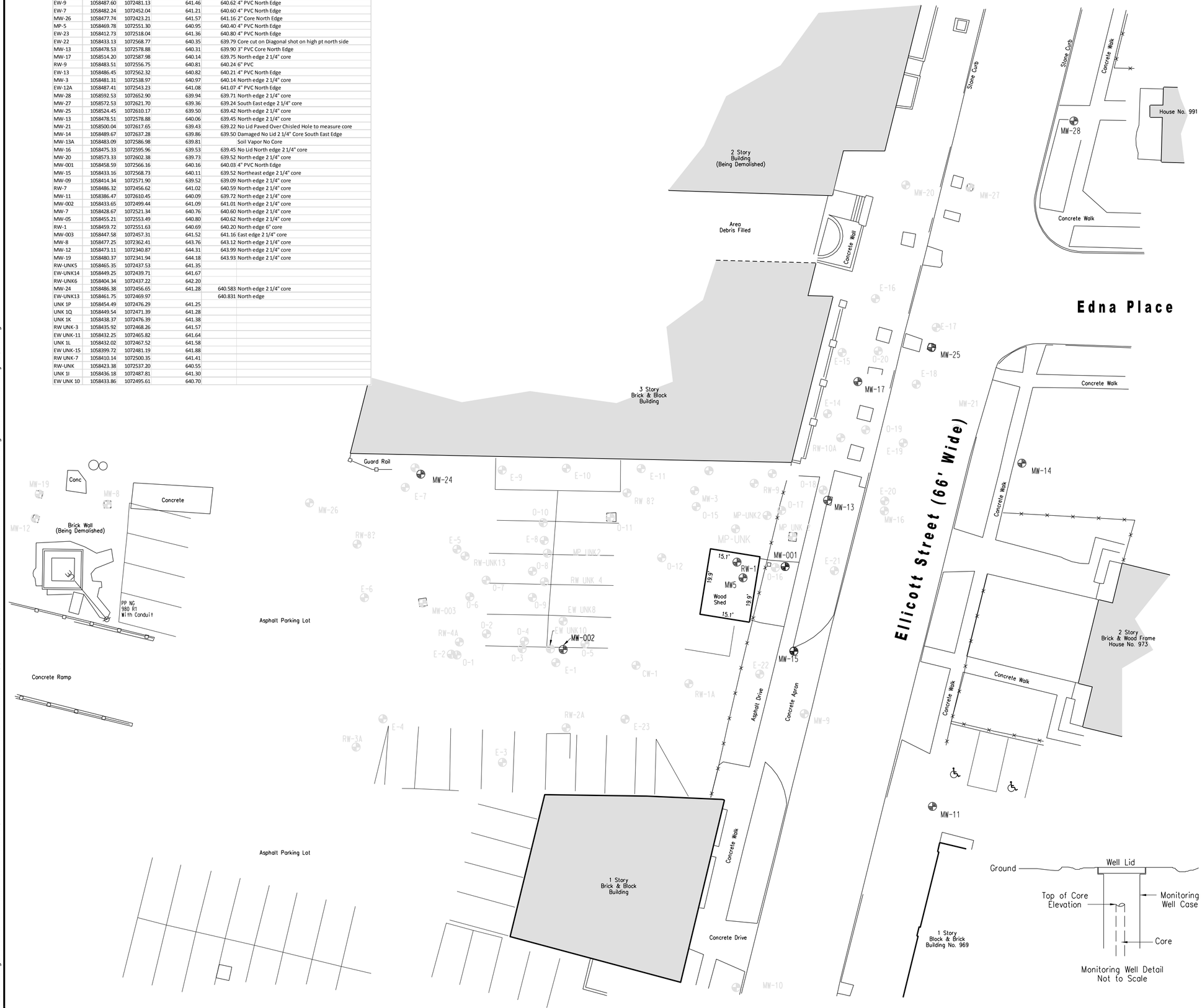
A plan will be developed and utilized by the contractor for all remedial work to ensure compliance with local noise control ordinances.

APPENDIX E – BORING LOGS

Well ID	Northing	Easting	Ground Elevation	Top of Core	Note
MW-10	1058332.06	1072551.43	640.06	639.47	North Rim Core
MW-28	1058592.54	1072652.90	640.19	639.96	North edge 2 1/4" core
MW-11	1058386.48	1072610.41	640.33	640.00	Core cut on Diagonal shot on high pt on South side
EW-4	1058412.80	1072445.29	642.24	641.42	4" PVC North Edge
UNK 1J	1058433.92	1072487.21	641.54	638.83	Inv Horizontal Pipe to Northwest
EW UNK9	1058429.79	1072497.23	641.34	640.55	4" PVC North Edge
EW-5	1058463.81	1072467.52	641.24	640.40	4" PVC North Edge
EW-11	1058488.05	1072522.88	641.36	640.71	4" PVC North Edge
EW-10	1058488.15	1072500.40	641.64	640.97	4" PVC North Edge
EW-9	1058487.60	1072481.13	641.46	640.62	4" PVC North Edge
EW-7	1058482.24	1072452.04	641.21	640.60	4" PVC North Edge
MW-26	1058477.74	1072423.21	641.57	641.16	2" Core North Edge
MP-5	1058469.78	1072551.30	640.95	640.40	4" PVC North Edge
EW-23	1058412.73	1072518.04	641.36	640.80	4" PVC North Edge
EW-22	1058433.13	1072568.77	640.35	639.79	Core cut on Diagonal shot on high pt north side
MW-13	1058478.53	1072578.88	640.31	639.90	3" PVC Core North Edge
MW-17	1058514.20	1072587.98	640.14	639.75	North edge 2 1/4" core
RW-9	1058483.51	1072556.75	640.81	640.24	6" PVC
EW-13	1058486.45	1072562.32	640.82	640.21	4" PVC North Edge
MW-3	1058481.31	1072538.97	640.97	640.14	North edge 2 1/4" core
EW-12A	1058487.41	1072543.23	641.08	641.07	4" PVC North Edge
MW-28	1058592.53	1072652.90	639.94	639.71	North edge 2 1/4" core
MW-27	1058572.53	1072621.70	639.36	639.24	South East edge 2 1/4" core
MW-25	1058524.45	1072610.17	639.50	639.42	North edge 2 1/4" core
MW-13	1058478.51	1072578.88	640.06	639.45	North edge 2 1/4" core
MW-21	1058500.04	1072617.65	639.43	639.22	No Lid Paved Over Chisled Hole to measure core
MW-14	1058489.67	1072637.28	639.86	639.50	Damaged No Lid 2 1/4" Core South East Edge
MW-13A	1058483.09	1072586.98	639.81		Soil Vapor No Core
MW-16	1058475.33	1072595.96	639.53	639.45	No Lid North edge 2 1/4" core
MW-20	1058573.33	1072602.38	639.73	639.52	North edge 2 1/4" core
MW-001	1058458.59	1072566.16	640.16	640.03	4" PVC North Edge
MW-15	1058433.16	1072568.73	640.11	639.52	Northeast edge 2 1/4" core
MW-09	1058414.34	1072571.90	639.52	639.09	North edge 2 1/4" core
RW-7	1058486.32	1072456.62	641.02	640.59	North edge 2 1/4" core
MW-11	1058386.47	1072610.45	640.09	639.72	North edge 2 1/4" core
MW-002	1058433.65	1072499.44	641.09	641.01	North edge 2 1/4" core
MW-7	1058428.67	1072521.34	640.76	640.60	North edge 2 1/4" core
MW-05	1058455.21	1072553.49	640.80	640.62	North edge 2 1/4" core
RW-1	1058459.72	1072551.63	640.69	640.20	North edge 6" core
MW-003	1058447.58	1072457.31	641.52	641.16	East edge 2 1/4" core
MW-8	1058477.25	1072362.41	643.76	643.12	North edge 2 1/4" core
MW-12	1058473.11	1072340.87	644.31	643.99	North edge 2 1/4" core
MW-19	1058480.37	1072341.94	644.18	643.93	North edge 2 1/4" core
RW-UNK5	1058465.35	1072437.53	641.35		
EW-UNK14	1058449.25	1072439.71	641.67		
RW-UNK6	1058404.34	1072437.22	642.20		
MW-24	1058486.38	1072456.65	641.28	640.583	North edge 2 1/4" core
EW-UNK13	1058461.75	1072469.97		640.831	North edge
UNK 1P	1058454.49	1072476.29	641.25		
UNK 1Q	1058449.54	1072471.39	641.28		
UNK 1K	1058438.37	1072476.39	641.38		
RW UNK-3	1058435.92	1072468.26	641.57		
EW UNK-11	1058432.25	1072465.82	641.64		
UNK 1L	1058432.02	1072467.52	641.58		
EW UNK-15	1058399.72	1072481.19	641.88		
RW UNK-7	1058410.14	1072500.35	641.41		
RW-UNK	1058423.38	1072537.20	640.55		
UNK 1I	1058436.18	1072487.81	641.30		
EW UNK 10	1058433.86	1072495.61	640.70		

E-11 Abandoned Monitering Wells

MW-25 Active Monitering Wells



20 0 20 40

SCALE BAR IN FEET

Niagara Boundary
And Mapping Services

761 Cayuga Street
Lewiston, NY 14092
(716) 297-9584
Fax (716) 297-9586
E-Mail KLSNBMS@AOL.COM

Map Showing Monitoring Well Locations at 780 Ellicott LLC

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LOT	SECTION	TOWNSHIP	RANGE

City	Buffalo
COUNTY	Erie
STATE	New York
DATE	November 16, 2017
SCALE	1" = 30'
JOB NO.	9652-17
REVISIONS	

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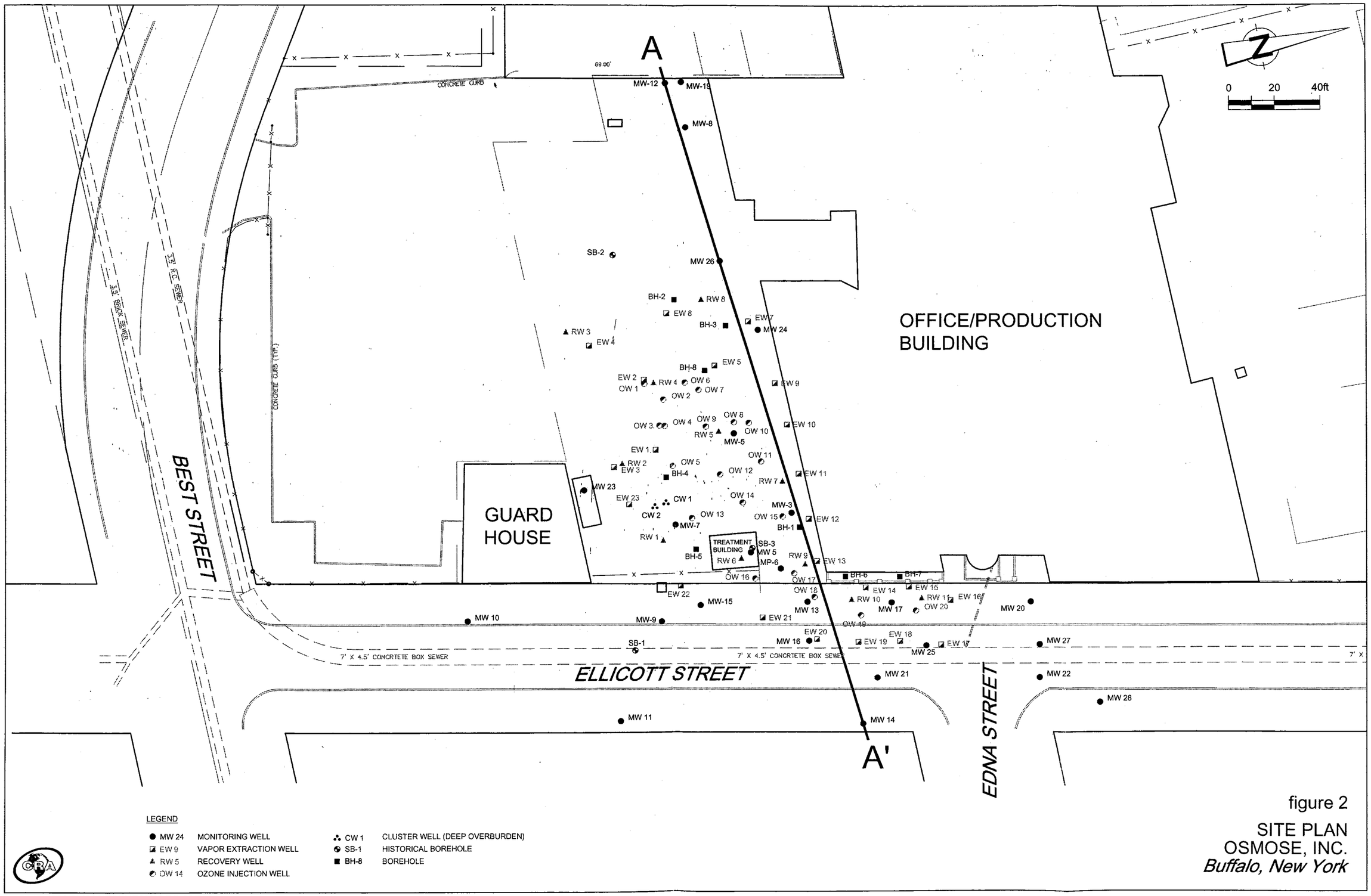
Kenneth L. Slaugenhoupt Lic. No. 50349

FILE: **Adg_fileserver*nbms*nbms (Nbsvr01) (Z)*ARCHIVE_PROJECTS*NBMS 9600-9699*9652 OsMose Site Buffalo*9652 Monitoring Wells February 2018.dgn



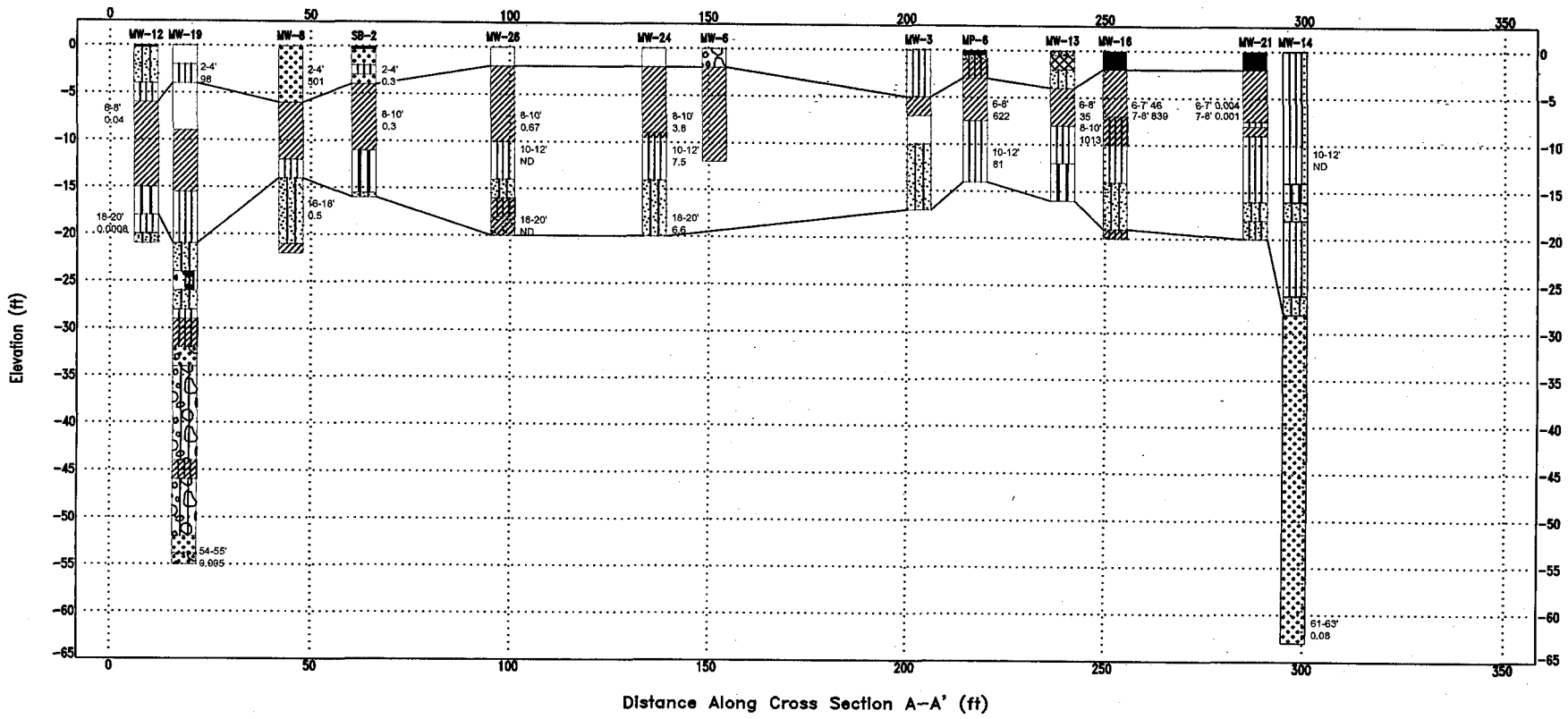
LEGEND

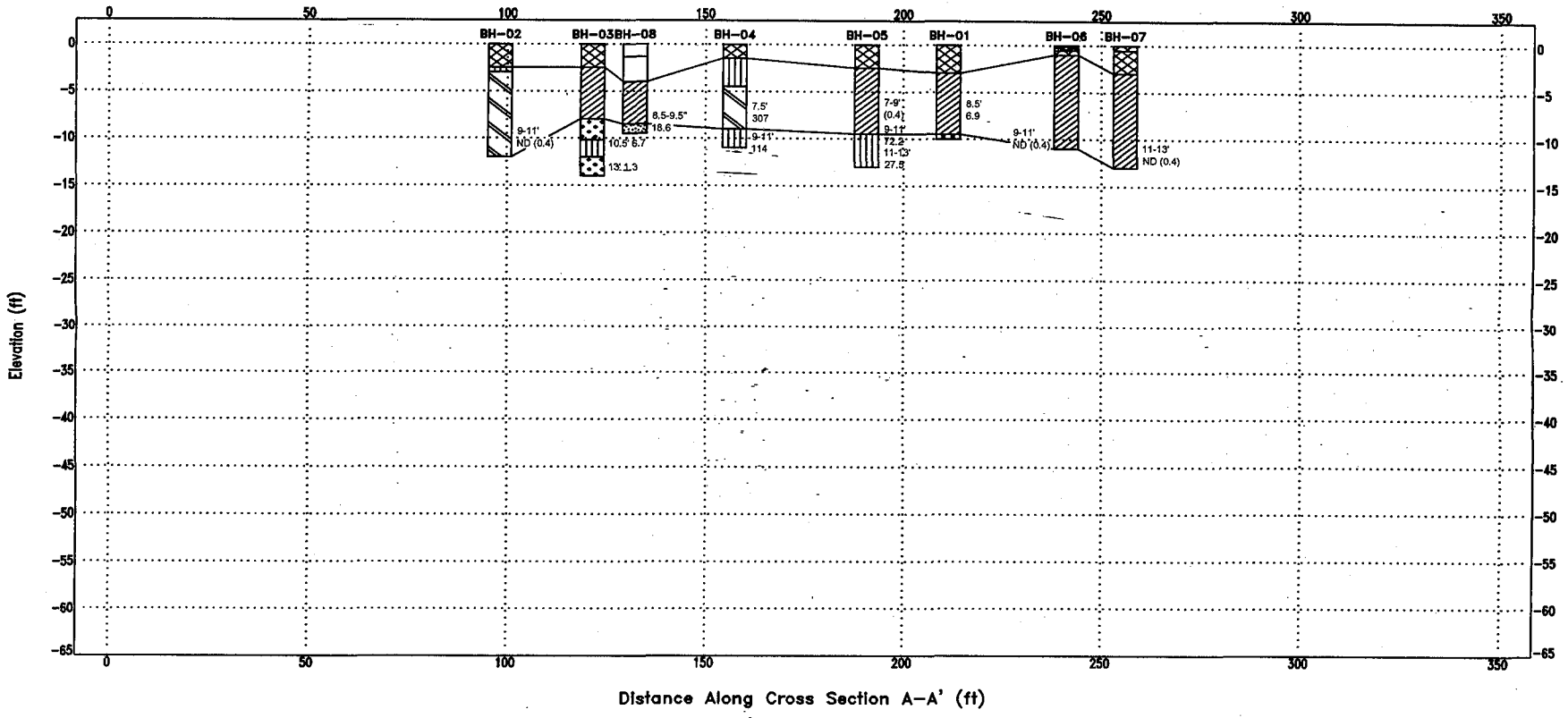
● MW 24	MONITORING WELL	⁂ CW 1	CLUSTER WELL (DEEP OVERBURDEN)
◪ EW 9	VAPOR EXTRACTION WELL	◔ SB-1	HISTORICAL BOREHOLE
▲ RW 5	RECOVERY WELL	■ BH-8	BOREHOLE
◴ OW 14	OZONE INJECTION WELL		

figure 2

SITE PLAN
OSMOSE, INC.
Buffalo, New York

16443-03(WALI006)GN-NF002 DEC 29/2004





LEGEND

- ASPHALT
- CL (LOW PLASTICITY CLAY)
- CL-CH (LOW TO HIGH PLASTICITY CLAY)
- CL-ML (LOW PLASTICITY SILT AND CLAY)
- FILL
- GM (SILTY GRAVEL)
- GP (POORLY GRADED GRAVEL)
- GW-GM (WELL GRADED GRAVEL WITH SILT)
- MH (ELASTIC SILT)
- ML (SILT)
- MLS (SANDY SILT)
- NOT SAMPLED
- OL (LOW PLASTICITY ORGANIC SILT OR CLAY)
- SC (CLAYEY SAND)
- SM (SILTY SAND)
- SP (POORLY GRADED SAND)
- SW (SILTY SAND)
- SWG (WELL GRADED GRAVELLY SAND)

A —— A' - CROSS SECTION

10-12' - DEPTH OF SAMPLE COLLECTION

307 - TOTAL PAH CONCENTRATION IN SOILS (ppm)

figure 3

CROSS SECTION A-A'
OSMOSE, INC.
Buffalo, New York

GROUNDWATER TECHNOLOGY, INC.

Well I.D.: SB-3

Page 1 of 1

Project: OSMOSE OZONE
Location: BUFFALO, NEW YORK
Project No.: 01110-5306 Date: 12/2/92
T.O.C. Elev.: Well Depth: NA
Explor. Depth: 14' Hole Dia.: 6 1/2"
Casing – Dia.: NA Length: NA Type: NA
Screen – Dia.: NA Length: NA Slot Size: NA
Drilling Co.: EDI Driller: S. GINGRICH Logged by: J.O.G.
Drilling Method: HSA Sampling Method: 3" SPLIT-SPOON
Notes:

Sketch Map: SEE SITE MAP FOR LOCATION

Key: Concrete | Bentonite | Native Backfill | Sand/Gravel Pack | Well Screen | Water Table

Depth (feet)	Well Construction	Sample No.	% Rec.	Blows/ Density	PID Rdg. (ppm)	Depth (feet)	Soils/Lithology
0						0	
1		1	40%		7.9	1	0 – 2' 0 – 0.5' asphalt 0.5' – 1.5' moist, gray, SILT and GRAVEL with some sand 1.5' – 2.0' moist, black SILT with some clay, little coarse sand
2						2	
3		2	70%		6.4	3	2' – 4' 2.0' – 2.5' same 2.5' – 4.0' moist, brown, CLAY with some silt, trace coarse sand
4						4	
5		3	70%		44.3	5	4' – 6' SAME bottom 2" SILT and CLAY
6						6	
7		4	70%		555	7	6' – 8' moist, brown, CLAY with little silt, trace sand
8						8	▼
9		5	80%		313	9	8' – 10' 8.0' – 8.5' saturated, brown, SAME 8.5' – 10.0' saturated, gray, SILT and CLAY with trace sand
10						10	
11		6	100%		81.5	11	10' – 12' saturated, brown, SILT with some clay, trace sand
12						12	
13		7	100%		38.2	13	12' – 14' SAME
14						14	
15						15	
16						16	
17						17	
18						18	
19						19	
20						20	
21						21	
22						22	
23						23	
24						24	
25						25	

GROUNDWATER TECHNOLOGY

Division of Oil Recovery Systems, Inc.

Drilling Log

Well Number MW-11

Project OSMOSE / BUFFALO Owner

Location BUFFALO NY Project Number 0110 5470 -0203

Date Drilled 10/16/90 Total Depth of Hole Diameter 10.5 OD

Surface Elevation Water Level, Initial 24-hrs.

Screen: Dia. 2" Length Slot Size 0.010

Casing: Dia. 2" Length Type FRP

Drilling Company EARTH DIMENSIONS Drilling Method HSA

Driller DALE GRAMZA Log by MLG

Sketch Map

Notes

Depth (Feet)	Well Construction	Notes	Sample Number / Blows	Graphic Log / PID	Description/Soil Classification (Color, Texture, Structures)
0			3-4-4-4	0	SPOON 0'-2': DAMP, DK. BRN FINE SAND AND SILT WITH 0.3' SEAM OF TAN F. SAND TRACE SILT @ 1.5'.
2			3-4-6-7	0	SPOON 2'-4': 2.0-2.7 DAMP. DK BRN SILTY FINE SAND, LITTLE CLAY EMBEDDED W/TRACE COARSE SAND. 2.7-4.0 DAMP, RED-BRN/ORANGE/GREY MOTTLED CLAY, LITTLE FINE SAND. MED. STIFF, NO ODOR.
4		2" GROUT			
6		CLAY	6-7-9-11	0	SPOON 4'-6': DAMP, RED-BRN/ORANGE/GREY SLIGHTLY MOTTLED CLAYEY SILT. TRACE F. SAND.
8					
10		9.5'	5-6-8-14	0	SPOON 6'-8': DAMP, RED-BRN CLAY, TRACE SILT. OCCASIONAL SILT PARTINGS NO ODOR. STIFF.
12					
14		FINE SAND	6-7-10-12	0	SPOON 8'-10': 8-8.3': DAMP RED-BRN CLAYEY SILT LAMINATED W/ GREY SILTY CLAY PARTINGS. 8.3-9.5': DAMP RED-BRN/GREY/ORANGE SLIGHTLY MOTTLED CLAY. 9.5-10.0: SAT. RED-BRN FINE SAND. UNIFORM.
16					
18		BENT. SEAL	3-5-7-7	0	SPOON 10'-12': SAT. RED-BRN UNIFORM FINE SAND, SOME SILT, TRACE CLAY. FIRM. NO ODOR
20		#1 SAND	3-6-7-9	0	SPOON 12'-14': A/A.
22			2-2-2-4		SPOON 14'-16': SAT. RED-BRN CLAYEY F. SAND
			W-1-2-3	0	SPOON 16'-18': 16'-17.0': SAT. RED-BRN, CLAYEY FINE SAND, TRACE F. GRAVEL FRAGMEN 17'-18': SAT. RED-BRN CLAY.
			W-1-2	0	SPOON 18'-20': SAT. RED BRN. CLAYEY F. SAND.

02100144

Well I.D.: MW-15

GROUNDWATER TECHNOLOGY, INC.

Page 1 of 1

Project: OSMOSE PHASE II
Location: BUFFALO, NEW YORK
Project No.: 0110-5307 Date: 12/3/92
T.O.C. Elev.: Well Depth: 15 1/2'
Exptor. Depth: 20' Hole Dia.: 6 1/2"
Casing – Dia.: 2" Length: 5' Type: FRE
Screen – Dia.: 2" Length: 10' Slot Size: 0.020"
Drilling Co.: EDI Driller: S. GINGRICH Logged by: J.O.G.
Drilling Method: HSA Sampling Method: 3" SPLIT-SPOON
Notes: FILTER PACK MATERIAL: #2 SAND

Sketch Map: SEE SITE MAP FOR LOCATION

Key: Concrete | Bentonite | Native Backfill | Sand/Gravel Pack | Well Screen | ▼ Water Table

Depth (feet)	Well Construction	Sample No.	% Rec.	Blows/ Density	PID Rdg. (ppm)	Depth (feet)	Soils/Lithology
0						0	
1		1	30%		5.1	1	0 – 2' moist, dark brown, SILT with some organic debris, little clay, sand, gravel
2						2	
3		2	70%		42.9	3	2' – 4' moist, red-brown, CLAY with some silt, trace sand
4						4	
5		3	70%		104	5	4' – 6' moist, brown, SAME
6						6	
7		4	100%		255	7	6' – 8' 6.0' – 7.0' moist, SAME 7.0' – 8.0' moist, brown, SILT and CLAY with trace sand
8						8	▼ 8.0' – 8.5' saturated, SAME
9		5	100%		236	9	8' – 10' 8.5' – 9.0' saturated, brown, CLAY with some silt, trace sand 9.0' – 10.0' saturated, brown, SILT and CLAY with trace sand
10						10	
11		6	100%		34.8	11	10' – 12' 10.0' – 11.0' SAME 11.0' – 12.0' saturated, brown, SILT and FINE SAND with little clay, trace coarse sand
12						12	
13		7	50%		25.2	13	12' – 14' SAME
14						14	
15		8	60%		24.5	15	14' – 16' SAME
16						16	
17		9	50%		32.0	17	16' – 18' saturated, gray, SILT and CLAY with trace gravel
18						18	
19		10	100%		18.7	19	18' – 20' saturated, gray, SILT and CLAY with trace sand
20						20	
21						21	
22						22	
23						23	
24						24	
25						25	

Well I.D.: MW-17

GROUNDWATER TECHNOLOGY, INC.

Page 1 of 1

Project: OSMOSE PHASE II
Location: BUFFALO, NEW YORK
Project No.: 01110-5307 Date: 12/2/92
T.O.C. Elev.: Well Depth: 15'
Explor. Depth: 20' Hole Dia.: 6 1/2"
Casing – Dia.: 2" Length: 5' Type: FRE
Screen – Dia.: 2" Length: 10' Slot Size: 0.020"
Drilling Co.: EDI Driller: S. GINGRICH Logged by: J.O.G.
Drilling Method: HSA Sampling Method: 3" SPLIT-SPOON
Notes: FILTER PACK MATERIAL: #2 SAND

Sketch Map: SEE SITE MAP FOR LOCATION

Key: Concrete | Bentonite | Native Backfill | Sand/Gravel Pack | Well Screen | Water Table

Depth (feet)	Well Construction	Sample No.	% Rec.	Blows/ Density	PID Rdg. (ppm)	Depth (feet)	Soils/Lithology
0						0	
1		1	30%		11.3	1	0 – 2' 0 – 1.0' concrete and base 1.0' – 1.5' moist, gray, FINE SAND and SILT with some gravel 1.5' – 2.0' moist, brown, SILT with some clay, little fine sand
2						2	
3		2	70%		31.8	3	2' – 4' moist, brown CLAY with some silt, trace coarse sand
4						4	
5		3	100%		9.2	5	4' – 6' 4.0' – 5.0' moist, brown, SILT and CLAY with little coarse sand and gravel 5.0' – 6.0' moist, red-brown, CLAY with little silt, trace gravel
6						6	
7		4	100%		141	7	▼ 6' – 8' 6.0' – 7.0' moist, SAME 7.0' – 8.0' saturated, brown, SILT and CLAY with trace gravel
8						8	
9		5	100%		417	9	8' – 10' SAME
10						10	
11		6	80%		78.2	11	10' – 12' SAME
12						12	
13		7	80%		45.7	13	12' – 14' saturated, gray, SILT with some clay, trace coarse sand
14						14	
15		8	50%		31.0	15	14' – 16' SAME
16						16	
17		9	70%		39.0	17	16' – 18' 16.0' – 17.0' SAME 17.0' – 18.0' saturated, gray, SILT with little clay, trace coarse sand
18						18	
19		10	100%		33.0	19	18' – 20' 18.0' – 19.5' SAME 19.5' – 20.0' saturated, brown, SILT and CLAY
20						20	
21						21	
22						22	
23						23	
24						24	
25						25	

Well I.D.: MW-24

GROUNDWATER TECHNOLOGY, INC.

Page 1 of 1

Project: OSMOSE PHASE II
Location: BUFFALO, NEW YORK
Project No.: 01110-5307 Date: 2/16/93
T.O.C. Elev.: Well Depth: 15'
Explor. Depth: 20' Hole Dia.: 8 1/2"
Casing – Dia.: 2" Length: 3' Type: FRE
Screen – Dia.: 2" Length: 11 1/2' Slot Size: FRE 0.020"
Drilling Co.: EDI Driller: S. GINGRICH Logged by: J.O.G.
Drilling Method: HSA Sampling Method: SPLIT-SPOON
Notes: FILTER PACK MATERIAL: #2 SAND

Sketch Map: SEE SITE MAP FOR LOCATION

Key: Concrete | Bentonite | Native Backfill | Sand/Gravel Pack | Well Screen | Water Table

Depth (feet)	Well Construction	Sample No.	% Rec.	Blows/ Density	PID Rdg. (ppm)	Depth (feet)	Soils/Lithology
0						0	
1						1	
2						2	
3		1	50%		0.0	3	2' – 4' moist, brown and black, CLAY with some silt
4						4	
5		2	50%		0.0	5	4' – 6' moist, brown, CLAY with little silt, fine sand
6						6	
7		3	70%		5.0	7	6' – 8' moist, brown, CLAY with trace silt
8						8	8' – 9' SAME
9		4	90%		58	9	8' – 10' 9' – 9.5' moist, brown SILT and CLAY
10						10	▼ 9.5' – 10' saturated, brown, SILT with some clay
11		5	70%		18	11	10' – 12' saturated, brown, SILT with little clay
12						12	
13		6	60%		1.0	13	12' – 14' saturated, brown, SILT
14						14	
15		7	60%		0.5	15	14' – 16' saturated, brown, SILT and FINE SAND
16						16	
17		8	50%		0.0	17	16' – 18' SAME
18						18	
19		9	60%		0.0	19	18' – 20' SAME
20						20	
21						21	
22						22	
23						23	
24						24	
25						25	

Well I.D.: MW-25

GROUNDWATER TECHNOLOGY, INC.

Page 1 of 1

Project: OSMOSE PHASE II
Location: BUFFALO, NEW YORK
Project No.: 01110-5307 Date: 2/18/93
T.O.C. Elev.: Well Depth: 9'
Explor. Depth: 9' Hole Dia.: 8 1/2"
Casing - Dia.: 2" Length: 4' Type: FRE
Screen - Dia.: 2" Length: 5' Slot Size: FRE 0.020"
Drilling Co.: EDI Driller: S. GINGRICH Logged by: J.O.G.
Drilling Method: HSA Sampling Method: SPLIT-SPOON
Notes: FILTER PACK MATERIAL: #2 SAND

Sketch Map: SEE SITE MAP FOR LOCATION

Key: Concrete | Bentonite | Native Backfill | Sand/Gravel Pack | Well Screen | ▼ Water Table

Depth (feet)	Well Construction	Sample No.	% Rec.	Blows/ Density	PID Rdg. (ppm)	Depth (feet)	Soils/Lithology
0						0	
1						1	
2		1	40%			2	1 – 3' dry, gray and black, CLAY with little silt
3						3	
4		2	60%			4	3' – 5' drry, brown, SAME
5						5	
6		3	70%			6	5' – 7' moist, SAME
7						7	▼ 7' – 8' saturated, brown, SILT and CLAY
8		4	90%			8	7' – 9' 8' – 9' saturated, brown, SILT with some clay.
9						9	
10						10	
11						11	
12						12	
13						13	
14						14	
15						15	
16						16	
17						17	
18						18	
19						19	
20						20	
21						21	
22						22	
23						23	
24						24	
25						25	

Citation:

Conestoga Rivers & Associates, 2004.

Figure 2, Site Plan

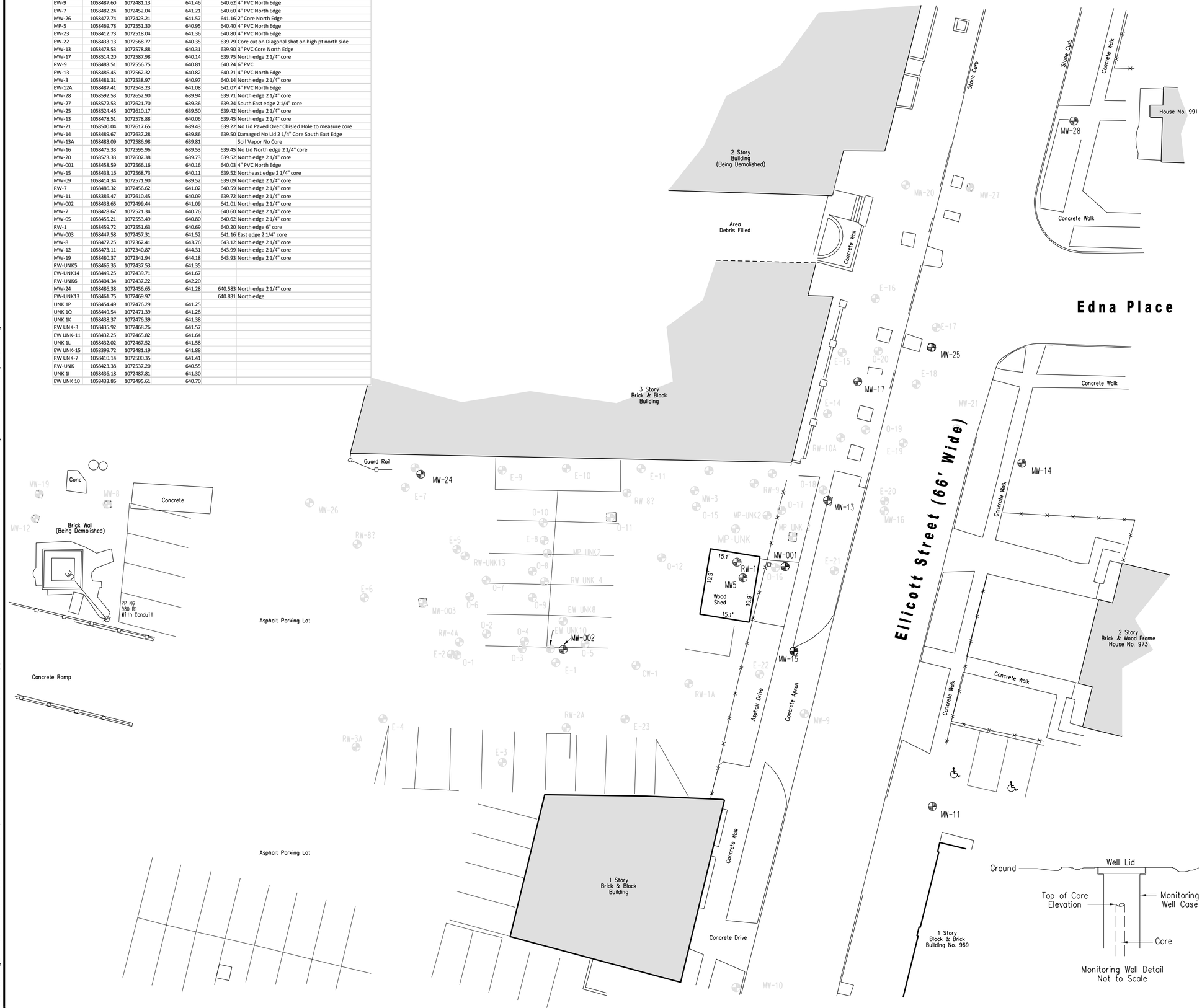
Figure 3, Cross Section A-A’

APPENDIX F – WELL CONSTRUCTION LOGS

Well ID	Northing	Easting	Ground Elevation	Top of Core	Note
MW-10	1058332.06	1072551.43	640.06	639.47	North Rim Core
MW-28	1058592.54	1072652.90	640.19	639.96	North edge 2 1/4" core
MW-11	1058386.48	1072610.41	640.33	640.00	Core cut on Diagonal shot on high pt on South side
EW-4	1058412.80	1072445.29	642.24	641.42	4" PVC North Edge
UNK 1J	1058433.92	1072487.21	641.54	638.83	Inv Horizontal Pipe to Northwest
EW UNK9	1058429.79	1072497.23	641.34	640.55	4" PVC North Edge
EW-5	1058463.81	1072467.52	641.24	640.40	4" PVC North Edge
EW-11	1058488.05	1072522.88	641.36	640.71	4" PVC North Edge
EW-10	1058488.15	1072500.40	641.64	640.97	4" PVC North Edge
EW-9	1058487.60	1072481.13	641.46	640.62	4" PVC North Edge
EW-7	1058482.24	1072452.04	641.21	640.60	4" PVC North Edge
MW-26	1058477.74	1072423.21	641.57	641.16	2" Core North Edge
MP-5	1058469.78	1072551.30	640.95	640.40	4" PVC North Edge
EW-23	1058412.73	1072518.04	641.36	640.80	4" PVC North Edge
EW-22	1058433.13	1072568.77	640.35	639.79	Core cut on Diagonal shot on high pt north side
MW-13	1058478.53	1072578.88	640.31	639.90	3" PVC Core North Edge
MW-17	1058514.20	1072587.98	640.14	639.75	North edge 2 1/4" core
RW-9	1058483.51	1072556.75	640.81	640.24	6" PVC
EW-13	1058486.45	1072562.32	640.82	640.21	4" PVC North Edge
MW-3	1058481.31	1072538.97	640.97	640.14	North edge 2 1/4" core
EW-12A	1058487.41	1072543.23	641.08	641.07	4" PVC North Edge
MW-28	1058592.53	1072652.90	639.94	639.71	North edge 2 1/4" core
MW-27	1058572.53	1072621.70	639.36	639.24	South East edge 2 1/4" core
MW-25	1058524.45	1072610.17	639.50	639.42	North edge 2 1/4" core
MW-13	1058478.51	1072578.88	640.06	639.45	North edge 2 1/4" core
MW-21	1058500.04	1072617.65	639.43	639.22	No Lid Paved Over Chisled Hole to measure core
MW-14	1058489.67	1072637.28	639.86	639.50	Damaged No Lid 2 1/4" Core South East Edge
MW-13A	1058483.09	1072586.98	639.81		Soil Vapor No Core
MW-16	1058475.33	1072595.96	639.53	639.45	No Lid North edge 2 1/4" core
MW-20	1058573.33	1072602.38	639.73	639.52	North edge 2 1/4" core
MW-001	1058458.59	1072566.16	640.16	640.03	4" PVC North Edge
MW-15	1058433.16	1072568.73	640.11	639.52	Northeast edge 2 1/4" core
MW-09	1058414.34	1072571.90	639.52	639.09	North edge 2 1/4" core
RW-7	1058486.32	1072456.62	641.02	640.59	North edge 2 1/4" core
MW-11	1058386.47	1072610.45	640.09	639.72	North edge 2 1/4" core
MW-002	1058433.65	1072499.44	641.09	641.01	North edge 2 1/4" core
MW-7	1058428.67	1072521.34	640.76	640.60	North edge 2 1/4" core
MW-05	1058455.21	1072553.49	640.80	640.62	North edge 2 1/4" core
RW-1	1058459.72	1072551.63	640.69	640.20	North edge 6" core
MW-003	1058447.58	1072457.31	641.52	641.16	East edge 2 1/4" core
MW-8	1058477.25	1072362.41	643.76	643.12	North edge 2 1/4" core
MW-12	1058473.11	1072340.87	644.31	643.99	North edge 2 1/4" core
MW-19	1058480.37	1072341.94	644.18	643.93	North edge 2 1/4" core
RW-UNK5	1058465.35	1072437.53	641.35		
EW-UNK14	1058449.25	1072439.71	641.67		
RW-UNK6	1058404.34	1072437.22	642.20		
MW-24	1058486.38	1072456.65	641.28	640.583	North edge 2 1/4" core
EW-UNK13	1058461.75	1072469.97		640.831	North edge
UNK 1P	1058454.49	1072476.29	641.25		
UNK 1Q	1058449.54	1072471.39	641.28		
UNK 1K	1058438.37	1072476.39	641.38		
RW UNK-3	1058435.92	1072468.26	641.57		
EW UNK-11	1058432.25	1072465.82	641.64		
UNK 1L	1058432.02	1072467.52	641.58		
EW UNK-15	1058399.72	1072481.19	641.88		
RW UNK-7	1058410.14	1072500.35	641.41		
RW-UNK	1058423.38	1072537.20	640.55		
UNK 1I	1058436.18	1072487.81	641.30		
EW UNK 10	1058433.86	1072495.61	640.70		

E-11 Abandoned Monitering Wells

MW-25 Active Monitering Wells



20 0 20 40

SCALE BAR IN FEET

Niagara Boundary
And Mapping Services

761 Cayuga Street
Lewiston, NY 14092
(716) 297-9584
Fax (716) 297-9586
E-Mail KLSNBMS@AOL.COM

Map Showing Monitoring Well Locations at 780 Ellicott LLC

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LOT	SECTION	TOWNSHIP	RANGE

City	Buffalo
COUNTY	Erie
STATE	New York
DATE	November 16, 2017
SCALE	1" = 30'
JOB NO.	9652-17
REVISIONS	

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FILE: **Adg_fileserver*nbms*nbms (Nbsvr01) (Z)*ARCHIVE_PROJECTS*NBMS 9600-9699*9652 OsMose Site Buffalo*9652 Monitoring Wells February 2018.dgn

GROUNDWATER TECHNOLOGY, INC.

Well I.D.: SB-3

Page 1 of 1

Project: OSMOSE OZONE
Location: BUFFALO, NEW YORK
Project No.: 01110-5306 Date: 12/2/92
T.O.C. Elev.: Well Depth: NA
Explor. Depth: 14' Hole Dia.: 6 1/2"
Casing – Dia.: NA Length: NA Type: NA
Screen – Dia.: NA Length: NA Slot Size: NA
Drilling Co.: EDI Driller: S. GINGRICH Logged by: J.O.G.
Drilling Method: HSA Sampling Method: 3" SPLIT-SPOON
Notes:

Sketch Map: SEE SITE MAP FOR LOCATION

Key: Concrete | Bentonite | Native Backfill | Sand/Gravel Pack | Well Screen | Water Table

Depth (feet)	Well Construction	Sample No.	% Rec.	Blows/ Density	PID Rdg. (ppm)	Depth (feet)	Soils/Lithology
0						0	
1		1	40%		7.9	1	0 – 2' 0 – 0.5' asphalt 0.5' – 1.5' moist, gray, SILT and GRAVEL with some sand 1.5' – 2.0' moist, black SILT with some clay, little coarse sand
2						2	
3		2	70%		6.4	3	2' – 4' 2.0' – 2.5' same 2.5' – 4.0' moist, brown, CLAY with some silt, trace coarse sand
4						4	
5		3	70%		44.3	5	4' – 6' SAME bottom 2" SILT and CLAY
6						6	
7		4	70%		555	7	6' – 8' moist, brown, CLAY with little silt, trace sand
8						8	▼
9		5	80%		313	9	8' – 10' 8.0' – 8.5' saturated, brown, SAME 8.5' – 10.0' saturated, gray, SILT and CLAY with trace sand
10						10	
11		6	100%		81.5	11	10' – 12' saturated, brown, SILT with some clay, trace sand
12						12	
13		7	100%		38.2	13	12' – 14' SAME
14						14	
15						15	
16						16	
17						17	
18						18	
19						19	
20						20	
21						21	
22						22	
23						23	
24						24	
25						25	

GROUNDWATER TECHNOLOGY

Division of Oil Recovery Systems, Inc.

Drilling Log

Well Number MW-11

Project OSMOSE / BUFFALO Owner

Location BUFFALO NY Project Number 0110 5470 -0203

Date Drilled 10/16/90 Total Depth of Hole Diameter 10.5 OD

Surface Elevation Water Level, Initial 24-hrs.

Screen: Dia. 2" Length Slot Size 0.010

Casing: Dia. 2" Length Type FRP

Drilling Company EARTH DIMENSIONS Drilling Method HSA

Driller DALE GRAMZA Log by MLG

Sketch Map

Notes

Depth (Feet)	Well Construction	Notes	Sample Number / Blows	Graphic Log / PID	Description/Soil Classification (Color, Texture, Structures)
0			3-4-4-4	0	SPOON 0'-2': DAMP, DK. BRN FINE SAND AND SILT WITH 0.3' SEAM OF TAN F. SAND TRACE SILT @ 1.5'.
2			3-4-6-7	0	SPOON 2'-4': 2.0-2.7 DAMP. DK BRN SILTY FINE SAND, LITTLE CLAY EMBEDDED W/TRACE COARSE SAND. 2.7-4.0 DAMP, RED-BRN/ORANGE/GREY MOTTLED CLAY, LITTLE FINE SAND. MED. STIFF, NO ODOR.
4		2" GROUT			
6		CLAY	6-7-9-11	0	SPOON 4'-6': DAMP, RED-BRN/ORANGE/GREY SLIGHTLY MOTTLED CLAYEY SILT. TRACE F. SAND.
8					
10		9.5'	5-6-8-14	0	SPOON 6'-8': DAMP, RED-BRN CLAY, TRACE SILT. OCCASIONAL SILT PARTINGS NO ODOR. STIFF.
12					
14		FINE SAND	6-7-10-12	0	SPOON 8'-10': 8-8.3': DAMP RED-BRN CLAYEY SILT LAMINATED W/GREY SILTY CLAY PARTINGS. 8.3-9.5': DAMP RED-BRN/GREY/ORANGE SLIGHTLY MOTTLED CLAY. 9.5-10.0: SAT. RED-BRN FINE SAND. UNIFORM.
16					
18		BENT. SEAL	3-5-7-7	0	SPOON 10'-12': SAT. RED-BRN UNIFORM FINE SAND, SOME SILT, TRACE CLAY. FIRM. NO ODOR
20		#1 SAND	3-6-7-9	0	SPOON 12'-14': A/A.
22			2-2-2-4		SPOON 14'-16': SAT. RED-BRN CLAYEY F. SAND
			W-1-2-3	0	SPOON 16'-18': 16'-17.0': SAT. RED-BRN, CLAYEY FINE SAND, TRACE F. GRAVEL FRAGMEN 17'-18': SAT. RED-BRN CLAY.
			W-1-2	0	SPOON 18'-20': SAT. RED BRN. CLAYEY F. SAND.

02100144

Well I.D.: MW-15

GROUNDWATER TECHNOLOGY, INC.

Page 1 of 1

Project: OSMOSE PHASE II
Location: BUFFALO, NEW YORK
Project No.: 0110-5307 Date: 12/3/92
T.O.C. Elev.: Well Depth: 15 1/2'
Exptor. Depth: 20' Hole Dia.: 6 1/2"
Casing – Dia.: 2" Length: 5' Type: FRE
Screen – Dia.: 2" Length: 10' Slot Size: 0.020"
Drilling Co.: EDI Driller: S. GINGRICH Logged by: J.O.G.
Drilling Method: HSA Sampling Method: 3" SPLIT-SPOON
Notes: FILTER PACK MATERIAL: #2 SAND

Sketch Map: SEE SITE MAP FOR LOCATION

Key: Concrete | Bentonite | Native Backfill | Sand/Gravel Pack | Well Screen | ▼ Water Table

Depth (feet)	Well Construction	Sample No.	% Rec.	Blows/ Density	PID Rdg. (ppm)	Depth (feet)	Soils/Lithology
0						0	
1		1	30%		5.1	1	0 – 2' moist, dark brown, SILT with some organic debris, little clay, sand, gravel
2						2	
3		2	70%		42.9	3	2' – 4' moist, red-brown, CLAY with some silt, trace sand
4						4	
5		3	70%		104	5	4' – 6' moist, brown, SAME
6						6	
7		4	100%		255	7	6' – 8' 6.0' – 7.0' moist, SAME 7.0' – 8.0' moist, brown, SILT and CLAY with trace sand
8						8	▼ 8.0' – 8.5' saturated, SAME
9		5	100%		236	9	8' – 10' 8.5' – 9.0' saturated, brown, CLAY with some silt, trace sand 9.0' – 10.0' saturated, brown, SILT and CLAY with trace sand
10						10	
11		6	100%		34.8	11	10' – 12' 10.0' – 11.0' SAME 11.0' – 12.0' saturated, brown, SILT and FINE SAND with little clay, trace coarse sand
12						12	
13		7	50%		25.2	13	12' – 14' SAME
14						14	
15		8	60%		24.5	15	14' – 16' SAME
16						16	
17		9	50%		32.0	17	16' – 18' saturated, gray, SILT and CLAY with trace gravel
18						18	
19		10	100%		18.7	19	18' – 20' saturated, gray, SILT and CLAY with trace sand
20						20	
21						21	
22						22	
23						23	
24						24	
25						25	

Well I.D.: MW-17

GROUNDWATER TECHNOLOGY, INC.

Page 1 of 1

Project: OSMOSE PHASE II
Location: BUFFALO, NEW YORK
Project No.: 01110-5307 Date: 12/2/92
T.O.C. Elev.: Well Depth: 15'
Explor. Depth: 20' Hole Dia.: 6 1/2"
Casing – Dia.: 2" Length: 5' Type: FRE
Screen – Dia.: 2" Length: 10' Slot Size: 0.020"
Drilling Co.: EDI Driller: S. GINGRICH Logged by: J.O.G.
Drilling Method: HSA Sampling Method: 3" SPLIT-SPOON
Notes: FILTER PACK MATERIAL: #2 SAND

Sketch Map: SEE SITE MAP FOR LOCATION

Key: Concrete | Bentonite | Native Backfill | Sand/Gravel Pack | Well Screen | Water Table

Depth (feet)	Well Construction	Sample No.	% Rec.	Blows/ Density	PID Rdg. (ppm)	Depth (feet)	Soils/Lithology
0						0	
1		1	30%		11.3	1	0 – 2' 0 – 1.0' concrete and base 1.0' – 1.5' moist, gray, FINE SAND and SILT with some gravel 1.5' – 2.0' moist, brown, SILT with some clay, little fine sand
2						2	
3		2	70%		31.8	3	2' – 4' moist, brown CLAY with some silt, trace coarse sand
4						4	
5		3	100%		9.2	5	4' – 6' 4.0' – 5.0' moist, brown, SILT and CLAY with little coarse sand and gravel 5.0' – 6.0' moist, red-brown, CLAY with little silt, trace gravel
6						6	
7		4	100%		141	7	▼ 6' – 8' 6.0' – 7.0' moist, SAME 7.0' – 8.0' saturated, brown, SILT and CLAY with trace gravel
8						8	
9		5	100%		417	9	8' – 10' SAME
10						10	
11		6	80%		78.2	11	10' – 12' SAME
12						12	
13		7	80%		45.7	13	12' – 14' saturated, gray, SILT with some clay, trace coarse sand
14						14	
15		8	50%		31.0	15	14' – 16' SAME
16						16	
17		9	70%		39.0	17	16' – 18' 16.0' – 17.0' SAME 17.0' – 18.0' saturated, gray, SILT with little clay, trace coarse sand
18						18	
19		10	100%		33.0	19	18' – 20' 18.0' – 19.5' SAME 19.5' – 20.0' saturated, brown, SILT and CLAY
20						20	
21						21	
22						22	
23						23	
24						24	
25						25	

Well I.D.: MW-24

GROUNDWATER TECHNOLOGY, INC.

Page 1 of 1

Project: OSMOSE PHASE II
Location: BUFFALO, NEW YORK
Project No.: 01110-5307 Date: 2/16/93
T.O.C. Elev.: Well Depth: 15'
Explor. Depth: 20' Hole Dia.: 8 1/2"
Casing – Dia.: 2" Length: 3' Type: FRE
Screen – Dia.: 2" Length: 11 1/2' Slot Size: FRE 0.020"
Drilling Co.: EDI Driller: S. GINGRICH Logged by: J.O.G.
Drilling Method: HSA Sampling Method: SPLIT-SPOON
Notes: FILTER PACK MATERIAL: #2 SAND

Sketch Map: SEE SITE MAP FOR LOCATION

Key: Concrete | Bentonite | Native Backfill | Sand/Gravel Pack | Well Screen | Water Table

Depth (feet)	Well Construction	Sample No.	% Rec.	Blows/ Density	PID Rdg. (ppm)	Depth (feet)	Soils/Lithology
0						0	
1						1	
2						2	
3		1	50%		0.0	3	2' – 4' moist, brown and black, CLAY with some silt
4						4	
5		2	50%		0.0	5	4' – 6' moist, brown, CLAY with little silt, fine sand
6						6	
7		3	70%		5.0	7	6' – 8' moist, brown, CLAY with trace silt
8						8	8' – 9' SAME
9		4	90%		58	9	8' – 10' 9' – 9.5' moist, brown SILT and CLAY
10						10	▼ 9.5' – 10' saturated, brown, SILT with some clay
11		5	70%		18	11	10' – 12' saturated, brown, SILT with little clay
12						12	
13		6	60%		1.0	13	12' – 14' saturated, brown, SILT
14						14	
15		7	60%		0.5	15	14' – 16' saturated, brown, SILT and FINE SAND
16						16	
17		8	50%		0.0	17	16' – 18' SAME
18						18	
19		9	60%		0.0	19	18' – 20' SAME
20						20	
21						21	
22						22	
23						23	
24						24	
25						25	

Well I.D.: MW-25

GROUNDWATER TECHNOLOGY, INC.

Page 1 of 1

Project: OSMOSE PHASE II
Location: BUFFALO, NEW YORK
Project No.: 01110-5307 Date: 2/18/93
T.O.C. Elev.: Well Depth: 9'
Explor. Depth: 9' Hole Dia.: 8 1/2"
Casing - Dia.: 2" Length: 4' Type: FRE
Screen - Dia.: 2" Length: 5' Slot Size: FRE 0.020"
Drilling Co.: EDI Driller: S. GINGRICH Logged by: J.O.G.
Drilling Method: HSA Sampling Method: SPLIT-SPOON
Notes: FILTER PACK MATERIAL: #2 SAND

Sketch Map: SEE SITE MAP FOR LOCATION

Key: Concrete | Bentonite | Native Backfill | Sand/Gravel Pack | Well Screen | ▼ Water Table

Depth (feet)	Well Construction	Sample No.	% Rec.	Blows/ Density	PID Rdg. (ppm)	Depth (feet)	Soils/Lithology
0						0	
1						1	
2		1	40%			2	1 – 3' dry, gray and black, CLAY with little silt
3						3	
4		2	60%			4	3' – 5' drry, brown, SAME
5						5	
6		3	70%			6	5' – 7' moist, SAME
7						7	▼ 7' – 8' saturated, brown, SILT and CLAY
8		4	90%			8	7' – 9' 8' – 9' saturated, brown, SILT with some clay.
9						9	
10						10	
11						11	
12						12	
13						13	
14						14	
15						15	
16						16	
17						17	
18						18	
19						19	
20						20	
21						21	
22						22	
23						23	
24						24	
25						25	

APPENDIX G – QUALITY ASSURANCE PROJECT PLAN

All sampling and analyses will be performed in accordance with the requirements of the Quality Assurance Project Plan (QAPP) prepared for the site. Main Components of the QAPP include:

- QA/QC Objectives for Data Measurement;
- Sampling Program:

○ Sample containers will be properly washed, decontaminated, and appropriate preservative will be added (if applicable) prior to their use by the analytical laboratory. Containers with preservative will be tagged as such.

- ○ Sample holding times will be in accordance with the NYSDEC ASP requirements. ○ Field QC samples (e.g., trip blanks, coded field duplicates, and matrix spike/matrix spike duplicates) will be collected as necessary. Sample Tracking and Custody;

- Calibration Procedures:

○ All field analytical equipment will be calibrated immediately prior to each day's use. Calibration procedures will conform to manufacturer's standard instructions.

- ○ The laboratory will follow all calibration procedures and schedules as specified in USEPA SW-846 and subsequent updates that apply to the instruments used for the analytical methods.

- Analytical Procedures;
- Preparation of a Data Usability Summary Report (DUSR), which will present the results of data validation, including a summary assessment of laboratory data packages, sample preservation and chain of custody procedures, and a summary assessment of precision, accuracy, representativeness, comparability, and completeness for each analytical method.
- Internal QC and Checks;
- QA Performance and System Audits;
- Preventative Maintenance Procedures and Schedules; Corrective Action Measures.
- Assessing achievement of the remedial performance criteria.
- Preparing the necessary reports for the various monitoring activities.
- Reporting requirements;
- Quality Assurance/Quality Control (QA/QC) requirements;

G-1.0 INTRODUCTION

This Quality Assurance/Quality Control Plan is designed to provide an overview of QA/QC procedures. Specific methods and QA/QC procedures for chemical testing of environmental samples obtained from the site are defined.

The Project Manager will be responsible for verifying that QA procedures are followed in the field. This will provide for the valid collection of representative samples. The Project Manager will be in direct contact with the analytical laboratory to monitor laboratory activities to help ensure that holding times and other QA/QC requirements are met. The estimated annual number of groundwater samples and corresponding analytical parameters/methods are provided in Table 1. These sample quantities may vary depending on media availability and adjustments to routine media monitoring requirements under the SMP monitoring program.

In addition to overall project coordination, the selected laboratory will be responsible for overseeing both the analytical QA/QC activities.

Table G-1: Analytical Summary Table – Groundwater

Parameter	EPA Method	Groundwater Samples[1]
Volatile Organic Compounds	8260	10
Semi-volatile Compounds	8270	10

Note: 1. Includes 1 MS/MSD and 1 duplicate sample

The analytical laboratory proposed for use for the analysis of samples will be a certified NYSDOH ELAP laboratory for the appropriate categories. The QA Manager of the laboratory will be responsible for performing project-specific audits and for overseeing the quality control data generated.

G-2.0 DATA QUALITY OBJECTIVES

G-2.1 Background

Data Quality Objectives (DQOs) are qualitative and quantitative statements, which specify the quality of data required to support the investigation of the Site. DQOs focus on the identification of the end use of the data to be collected. The project DQOs will be achieved utilizing the definitive data category, as outlined in Guidance for the Data Quality Objectives Process, EPA QA/G-4 (September1994). All sample analyses will provide definitive data, which are generated using rigorous analytical methods, such as the reference methods approved by the United States Environmental Protection Agency (USEPA). The purpose of this investigation is to assess the performance and effectiveness of the remedy and the overall reduction in contamination at the site.

Within the context of the purpose stated above, the project DQOs for data collected during this investigation are:

- To assess the nature/extent of contamination in groundwater.
- To maintain the highest practicable scientific/professional standards for each procedure.
- To develop enough information to assess if the concentrations of contaminants identified in the media sampled are increasing or decreasing.

G-2.2 QA Objectives for Chemical Data Measurement

Sample analytical methodology for the media sampled and data deliverables will meet the requirements in the most recent NYSDEC Analytical Services Protocol (ASP). Laboratories will be instructed that completed Sample Preparation and Analysis Summary forms are to be submitted with the analytical data packages. The laboratory also will be instructed that matrix interferences must be cleaned up, to the extent practicable. Data usability summary reports (DUSRs) will be generated. In order to achieve the definitive data category described above, the data quality indicators of precision, accuracy, representativeness, comparability, and completeness will be measured during offsite chemical analysis.

G-2.2.1 Precision

Precision examines the distribution of the reported values about their mean. The distribution of reported values refers to how different the individual reported values are from the average reported value. Precision may be affected by the natural variation of the matrix or contamination within that matrix, as well as by errors made in field and/or laboratory handling procedures. Precision is evaluated using analyses of a laboratory matrix spike/matrix spike duplicate (for organics) and matrix duplicates (for inorganics), which not only exhibit sampling and analytical precision, but indicate analytical precision through the reproducibility of the analytical results. Relative Percent Difference (RPD) is used to evaluate precision. RPD criteria must meet the method requirements identified in Table G-1.

G-2.2.2 Accuracy

Accuracy measures the analytical bias in a measurement system. Sources of error are the sampling process, field contamination, preservation, handling, sample matrix, sample preparation, and analysis techniques. These data help to assess the potential concentration contribution from various outside sources. The laboratory objective for accuracy is to equal or exceeds the accuracy demonstrated for the applied analytical methods on samples of the same matrix. The percent recovery criterion is used to estimate accuracy based on recovery in the matrix spike/matrix spike duplicate and matrix spike

blank samples. The spike and spike duplicate, which will give an indication of matrix effects that may be affecting target compounds is also a good gauge of method efficiency.

G-2.2.3 Representativeness

Representativeness expresses the degree to which the sample data accurately and precisely represent the characteristics of a population of samples, parameter variations at a sampling point, or environmental conditions. Representativeness is a qualitative parameter, which is most concerned with the proper design of the sampling program or sub-sampling of a given sample. Objectives for representativeness are defined for sampling and analysis tasks and are a function of the investigative objectives. The sampling procedures have been selected with the goal of obtaining representative samples for the media of concern.

G-2.2.4 Comparability

Comparability is a qualitative parameter expressing the confidence with which one data set can be compared with another. A DQO for this program is to produce data with the greatest practicable degree of comparability. This goal is achieved through using standard techniques to collect and analyze representative samples and reporting analytical results in appropriate units. Complete field documentation will support the assessment of comparability. Comparability is limited by the other parameters (e.g., precision, accuracy, representative-ness, completeness, comparability), because only when precision and accuracy are known can data sets be compared with confidence. In order for data sets may be comparable, it is imperative that contract-required methods and procedures be explicitly followed.

G-2.2.5 Completeness

Completeness is defined as a measure of the amount of valid data obtainable from a measurement system compared to the amount that was expected to be obtained under normal conditions. It is important that appropriate QA procedures be maintained to verify that valid data are obtained in order to meet project needs. For the data generated, a goal of 90% is required for completeness (or usability) of the analytical data. If this goal is not met, then NYSDEC and 780 Ellicott project personnel will determine whether the deviations might cause the data to be rejected.

G-3.0 SAMPLING LOCATIONS, CUSTODY, HOLDING TIMES, & ANALYSIS

Sampling locations and procedures are discussed in Section G-3.3.1 and Appendix I of the SMP. Procedures for chain of custody, holding times, and laboratory analyses shall be followed as per SW-846 and as per the laboratory's Quality Assurance Plan. All holding times begin with validated time of sample receipt (VTSR) at the laboratory. The laboratory must meet the method required detection limits which are referenced within the methods.

G-4.0 CALIBRATION PROCEDURES AND FREQUENCY

In order to obtain a high level of precision and accuracy during sample processing procedures, laboratory instruments must be calibrated properly. Several analytical support areas must be considered so the integrity of standards and reagents is upheld prior to instrument calibration. The following sections describe the analytical support areas and laboratory instrument calibration procedures.

G-4.1 Analytical Support Areas

Prior to generating quality data, several analytical support areas must be considered; these are detailed in the following paragraphs.

1. Standard/Reagent Preparation - Primary reference standards and secondary standard solutions shall be obtained from National Institute of Standards and Technology (NIST), or other reliable commercial sources to verify the highest purity possible. The preparation and maintenance of standards and reagents will be accomplished according to the methods referenced. All standards and standard solutions are to be formally documented (i.e., in a logbook) and should identify the supplier, lot number, purity/concentration, receipt/preparation date, preparers name, method of preparation, expiration date, and any other pertinent information. All standard solutions shall be validated prior to use. Care shall be exercised in the proper storage and handling of standard solutions (e.g., separating volatile standards from nonvolatile standards). The laboratory shall continually monitor the quality of the standards and reagents through well documented procedures.

2. Balances - The analytical balances shall be calibrated and maintained in accordance with manufacturer specifications. Calibration is conducted with two Class AS" weights that bracket the expected balance use range. The laboratory shall check the accuracy of the balances daily and they must be properly documented in permanently bound logbooks.

3. Refrigerators/Freezers - The temperature of the refrigerators and freezers within the laboratory shall be monitored and recorded daily. This will verify that the quality of the standards and reagents is not compromised, and the integrity of the analytical samples is upheld. Appropriate acceptance ranges (2 to 6°C for refrigerators) shall be clearly posted on each unit in service.

4. Water Supply System - The laboratory must maintain a sufficient water supply for all project needs. The grade of the water must be of the highest quality (analyte-free) in order to eliminate false-positives from the analytical results. Ultraviolet cartridges or carbon absorption treatments are recommended for organic analyses and ion-exchange treatment is recommended for inorganic tests. Appropriate documentation of the quality of the water supply system(s) will be performed on a regular basis.

4.2 Laboratory Instruments

Calibration of instruments is required to verify that the analytical system is operating properly and at the sensitivity necessary to meet established quantitation limits. Each instrument for organic and inorganic analyses shall be calibrated with standards appropriate to the type of instrument and linear range established within the analytical method(s). Calibration of laboratory instruments will be performed according to specified methods.

In addition to the requirements stated within the analytical methods, the contract laboratory will be required to analyze an additional low-level standard at or near the detection limits. In general, standards will be used that bracket the expected concentration of the samples. This will require the use of different concentration levels, which are used to demonstrate the instrument's linear range of calibration.

Calibration of an instrument must be performed prior to the analysis of any samples and then at periodic intervals (continuing calibration) during the sample analysis to verify that the instrument is still calibrated. If the contract laboratory cannot meet the method required calibration requirements, corrective action shall be taken as discussed in Section G-7.0. All corrective action procedures taken by the contract laboratory are to be documented, summarized within the case narrative, and submitted with the analytical results.

G-5.0 INTERNAL QUALITY CONTROL CHECKS

Internal QC checks are used to determine if analytical operations at the laboratory are in control, as well as determining the effect sample matrix may have on data being generated. Two types of internal checks are performed and are described as batch QC and matrix-specific QC procedures. The type and frequency of specific QC samples performed by the contract laboratory will be according to the specified analytical method and project specific requirements. Acceptable criteria and/or target ranges for these QC
samples are presented within the referenced analytical methods.

QC results which vary from acceptable ranges shall result in the implementation of appropriate corrective measures, potential application of qualifiers, and/or an assessment of the impact these corrective measures have on the established data quality objectives. Quality control samples including any project-specific QC will be analyzed are discussed below.

G-5.1 Batch QC

Method Blanks - A method blank is defined as laboratory-distilled or deionized water that is carried through the entire analytical procedure. The method blank is used to determine

the level of laboratory background contamination. Method blanks are analyzed at a frequency of one per analytical batch.

Matrix Spike Blank Samples - A matrix spike blank (MSB) sample is an aliquot of water spiked (fortified) with all the elements being analyzed for calculation of precision and accuracy to verify that the analysis that is being performed is in control. An MSB will be performed for each matrix and organic parameter only.

G-5.2 Matrix-Specific QC

Matrix Spike Samples - An aliquot of a matrix is spiked with known concentrations of specific compounds as stipulated by the methodology. The matrix spike (MS) and matrix spike duplicate (MSD) are subjected to the entire analytical procedure in order to assess both accuracy and precision of the method for the matrix by measuring the percent recovery and relative percent difference of the two spiked samples. The samples are used to assess matrix interference effects on the method, as well as to evaluate instrument performance. MS/MSDs are analyzed at a frequency of one each per 20 samples per matrix.

Matrix Duplicates - The matrix duplicate (MD) is two representative aliquots of the same sample which are prepared and analyzed identically. Collection of duplicate samples provides for the evaluation of precision both in the field and at the laboratory by comparing the analytical results of two samples taken from the same location. Obtaining duplicate samples from a soil matrix requires homogenization (except for volatile organic compounds) of the sample aliquot prior to filling sample containers, in order to best achieve representative samples. Every effort will be made to obtain replicate samples; however, due to interferences, lack of homogeneity, and the nature of the soil samples, the analytical results are not always reproducible.

Rinsate (Equipment) Blanks - A rinsate blank is a sample of laboratory demonstrated analyte free water passed through and over the cleaned sampling equipment. A rinsate blank is used to indicate potential contamination from ambient air and from sample instruments used to collect and transfer samples. This water must originate from one common source within the laboratory and must be the same water used by the laboratory performing the analysis. The rinsate blank should be collected, transported, and analyzed in the same manner as the samples acquired that day. Rinsate blanks for nonaqueous matrices should be performed at a rate of 10 percent of the total number of samples collected throughout the sampling event. Rinse blanks will not be performed on samples (i.e., groundwater) where dedicated disposable equipment is used.

Trip Blanks - Trip blanks are not required for nonaqueous matrices. Trip blanks are required for aqueous sampling events. They consist of a set of sample bottles filled at the laboratory with laboratory demonstrated analyte free water. These samples then accompany the bottles that are prepared at the lab into the field and back to the laboratory, along with the collected samples for analysis. These bottles are never opened in the field.

Trip blanks must return to the lab with the same set of bottles they accompanied to the field. Trip blanks will be analyzed for volatile organic parameters. Trip blanks must be included at a rate of one per volatile sample shipment.

G-6.0 CALCULATION OF DATA QUALITY INDICATORS

G-6.1 Precision

Precision is evaluated using analyses of a field duplicate and/or a laboratory MS/MSD which not only exhibit sampling and analytical precision but indicate analytical precision through the reproducibility of the analytical results. RPD is used to evaluate precision by the following formula:

$$RPD = \frac{(X1 - X2) \times 100\%}{[(X1 + X2)/2]}$$

Where:

X1= Measured value of sample or matrix spike

X2= Measured value of duplicate or matrix spike duplicate

Precision will be determined through the use of MS/MSD (for organics) and matrix duplicates (for inorganics) analyses.

G-6.2 Accuracy

Accuracy is defined as the degree of difference between the measured or calculated value and the true value. The closer the numerical value of the measurement comes to the true value or actual concentration, the more accurate the measurement is. Analytical accuracy is expressed as the percent recovery of a compound or element that has been added to the environmental sample at known concentrations before analysis. Analytical accuracy may be assessed through the use of known and unknown QC samples and spiked samples. It is presented as percent recovery. Accuracy will be determined from matrix spike, matrix spike duplicate, and matrix spike blank samples, as well as from surrogate compounds added to organic fractions (i.e., volatiles, semi volatiles, PCB), and is calculated as follows:

$$\text{Accuracy (\%R)} = \frac{(Xs - Xu) \times 100\%}{K}$$

Where:

Xs- Measured value of the spike sample

Xu- Measured value of the unspiked sample

K - Known amount of spike in the sample

G-6.3 Completeness

Completeness is calculated on a per matrix basis for the project and is calculated as follows:

$$\text{Completeness (\%C)} = \frac{(Xv - Xn) \times 100\%}{N}$$

Where:

Xv- Number of valid measurements
Xn- Number of invalid measurements
N - Number of valid measurements expected to be obtained

G-7.0 CORRECTIVE ACTIONS

Laboratory corrective actions shall be implemented to resolve problems and restore proper functioning to the analytical system when errors, deficiencies, or out-of-control situations exist at the laboratory. Full documentation of the corrective action procedure needed to resolve the problem shall be filed in the project records, and the information summarized in the case narrative. A discussion of the corrective actions to be taken is presented in the following sections.

G-7.1 Incoming Samples

Problems noted during sample receipt shall be documented by the laboratory. The Project Manager shall be contacted immediately for problem resolution. All corrective actions shall be documented thoroughly.

G-7.2 Sample Holding Times

If any sample extraction and/or analyses exceed method holding time requirements, the Project Manager shall be notified immediately for problem resolution. All corrective actions shall be documented thoroughly.

G-7.3 Instrument Calibration

Sample analysis shall not be allowed until all initial calibrations meet the appropriate requirements. All laboratory instrumentation must be calibrated in accordance with method requirements. If any initial/continuing calibration standards exceed method QC limits, recalibration must be performed and, if necessary, reanalysis of all samples affected back to the previous acceptable calibration check.

G-7.4 Reporting Limits

The laboratory must meet the method required detection limits listed in NYSDEC ASP, 10/95 criteria. If difficulties arise in achieving these limits due to a particular sample matrix, the laboratory must notify 780 Ellicott project personnel for problem resolution. In order to achieve those detection limits, the laboratory must utilize all appropriate cleanup

procedures in an attempt to retain the project required detection limits. When any sample requires a secondary dilution due to high levels of target analytes, the laboratory must document all initial analyses and secondary dilution results. Secondary dilution will be permitted only to bring target analytes within the linear range of calibration. If samples are analyzed at a secondary dilution with no target analytes detected, the Project Manager will be immediately notified so that appropriate corrective actions can be initiated.

G-7.5 Method QC

All QC method-specified QC samples, shall meet the method requirements referenced in the analytical methods. Failure of method-required QC will result in the review and possible qualification of all affected data. If the laboratory cannot find any errors, the affected sample(s) shall be reanalyzed and/or re-extracted/redigested, then reanalyzed within method-required holding times to verify the presence or absence of matrix effects. If matrix effect is confirmed, the corresponding data shall be flagged accordingly using the flagging symbols and criteria. If matrix effect is not confirmed, then the entire batch of samples may have to be reanalyzed and/or re-extracted/redigested, then reanalyzed at no cost. 780 Ellicott shall be notified as soon as possible to discuss possible corrective actions should unusually difficult sample matrices be encountered.

G-7.6 Calculation Errors

All analytical results must be reviewed systematically for accuracy prior to submittal. If upon data review calculation and/or reporting errors exist, the laboratory will be required to reissue the analytical data report with the corrective actions appropriately documented in the case narrative.

G-8.0 DATA REDUCTION, VALIDATION, AND USABILITY

G-8.1 Data Reduction

Laboratory analytical data are first generated in raw form at the instrument. These data may be either in a graphic or printed tabular format. Specific data generation procedures and calculations are found in each of the referenced methods. Analytical results must be reported consistently. Identification of all analytes must be accomplished with an authentic standard of the analyte traceable to NIST or USEPA sources. Individuals experienced with a particular analysis and knowledgeable of requirements will perform data reduction.

G-8.2 Data Validation

Data validation is a systematic procedure of reviewing a body of data against a set of established criteria to provide a specified level of assurance of validity prior to its intended use. All analytical samples collected will receive a limited data review. The data

validation will be limited to a review of holding times, completeness of all required deliverables, review of QC results (surrogates, spikes, duplicates) and a 10% check of all samples analyzed to ensure they were analyzed properly. The methods as well as the general guidelines presented in the following documents will be used during the data review USEPA Contract Laboratory Program (CLP) Organic Data Review, SOP Nos. HW-6, Revision #11 and USEPA Evaluation of Metals Data for the Contract Laboratory Program based on 3/90, SOW, Revision XI. These documents will be used with the following exceptions:

- Technical holding times will be in accordance with NYSDEC ASP, 10/95 edition.
- Organic calibration and QC criteria will be in accordance with NYSDEC ASP, 10/95 edition. Data will be qualified if it does not meet NYSDEC ASP, 10/95 criteria.

Where possible, discrepancies will be resolved by the project manager (i.e., no letters will be written to laboratories). A complete analytical data validation is not anticipated. However, if the initial limited data audit reveals significant deviations and problems with the analytical data, project personnel may recommend a complete variation of the data.

G-9.0 REFERENCES

1. Comprehensive Environmental Response Compensation and Liability Act (CERCLA) Quality Assurance Manual, Final Copy, Revision I, October 1989.
2. National Enforcement Investigations Center of USEPA Office of Enforcement. NEIC Policies and Procedures. Washington: USEPA.
3. New York State Department of Environmental Conservation (NYSDEC). 1995. Analytical Services Protocol, (ASP) 10/95 Edition. Albany: NYSDEC.

APPENDIX H - SITE MANAGEMENT FORMS

H-1 Inspection Form

Site Inspection Form
980 Ellicott Street
Buffalo, New York

Date of Inspection: _____
Inspector: _____
Weather: _____
Ground Conditions: _____

This Form shall be completed each year prior to the Periodic Review Report and following any emergency that could compromise the Institutional or Engineering Controls at the Site. The site is shown on Figure H-1

Overall Site Condition:

1. Site Use
   1.1. Industrial
   1.2. Commercial
   1.3. Residential

2. Security
   2.1. Fence
   2.2. Gate

3. Pavement
   3.1. Cracking
   3.2. Drainage

4. Monitoring Wells

Monitoring Well ID	Accessible	Cover Condition	Well Condition (Visible Conditions)
MW-001			
MW-002			
MW-5			
MW-11			
MW-13			
MW-15			
MW-17			
MW-24			
MW-25			
MW-28			
RW-1			

Table H-1 – Monitoring Well Condition

Figure H-1
Site Boundary

Photographs

Note:

1. Photographs to be inserted here.
2. Reference all Photographs to Figure H-1.
3. Photographs shall be taken of any damages or violations of the Institutional Controls.

H-2 Sampling Log

Sample Collection Log Form
980 Ellicott Street
Buffalo, New York

Well No. _____
Sample Number: _____
Associated Blanks: _____

Date of Gauging: _____
Date of Purging: _____
Date of Sampling: _____

Sampler: _____
Weather: _____
Ground Conditions: _____

Depth to Water:

Observations:

- Color
- Odor
- NAPL

Purge Data

- Volume

Sample Data

- Temperature:
- Specific Conductance:
- pH:
- Dissolved Oxygen:
- ORP:
- Color:
- Odor:
- NAPL:

Sample Bottles

VOCs

SVOCs

Other

Notes:

Table H-1: Analytical Summary Table – Groundwater

Parameter	EPA Method	Groundwater Samples[1]
Volatile Organic Compounds	8260	10
Semi-volatile Compounds	8270	10

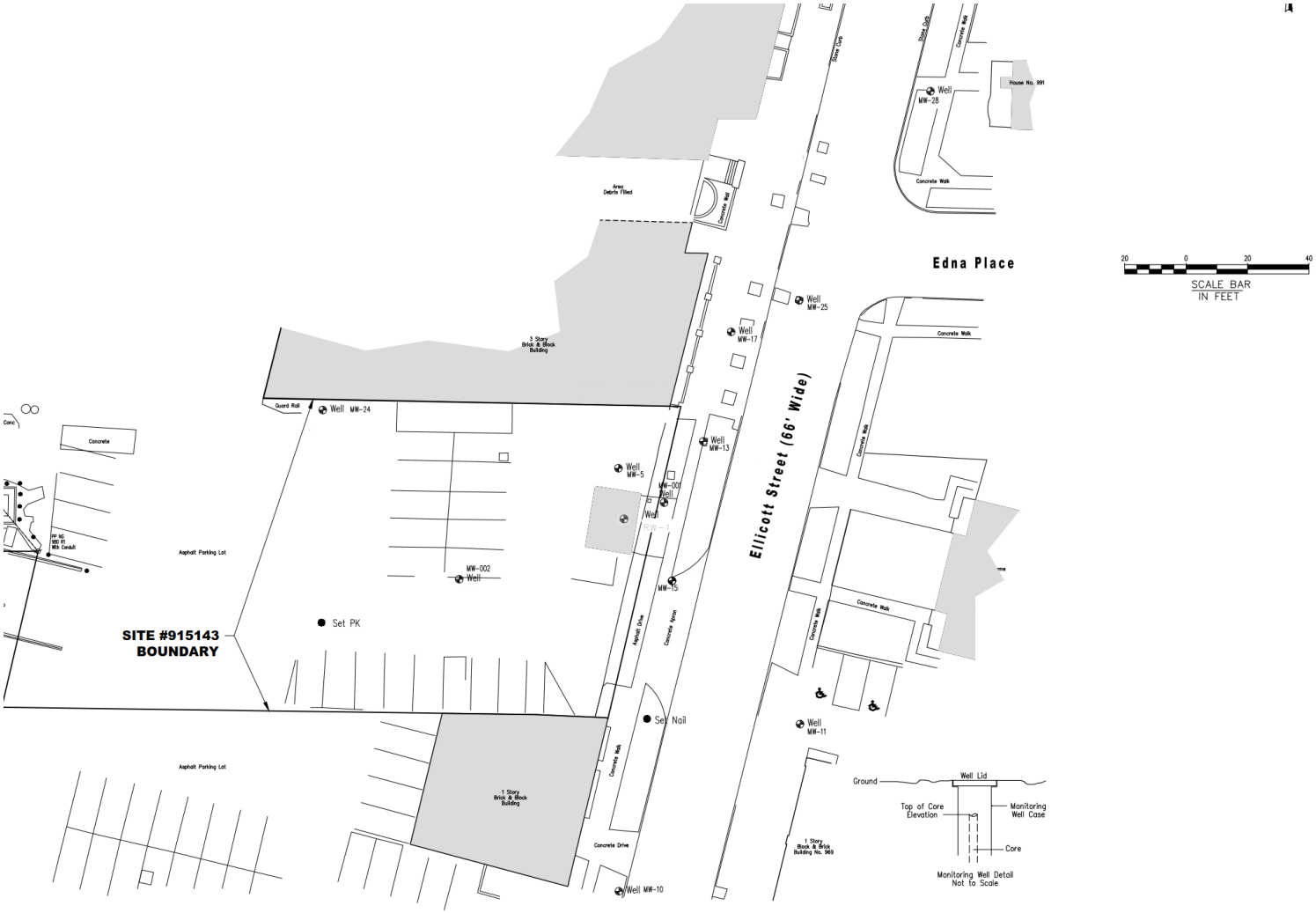


Figure H-2
Well Location Figure

Photographs

Note:

1. Photographs to be inserted here.
2. Reference all Photographs to Figure H-2.
3. Photographs shall be taken of any damages to well covers or casing (visible)

H-3 Interim Monitoring/inspection Report

Interim Monitoring/inspection Report
980 Ellicott Street
Buffalo, New York

Date of Monitoring/Inspection: _____
Inspector: _____ Employer _____
Title _____
Weather: _____
Ground Conditions: _____

Description of the activities performed:

Photographs or sketches showing the approximate location of any problems or incidents noted (included either in the form or on an attached sheet):

Observations/changes Since Last Inspection

Actions Required

Samples collected (e.g., sub-slab vapor, indoor air, outdoor air, etc.), if any:

Sample Media	Number	Analysis Ordered	Laboratory	Comments

Notes:

1. Attach chain of custody and sample collection forms.
2. Attach a summary table of all results.
3. Transmit copies of the lab report with submittal.

H-4 - Non-routine Maintenance Event Reporting Form

Non-routine Maintenance Event Reporting Form
980 Ellicott Street
Buffalo, New York

Date of Monitoring/Inspection:
Inspector: Employer
Title
Weather:
Ground Conditions:

Description of the activities performed:

Photographs or sketches showing the approximate location of any problems or incidents (included either on the form or on an attached sheet)

Copies of invoices for repair work, receipts for replacement equipment, etc. (attached to the form).

APPENDIX I – FIELD SAMPLING PLAN

The field sampling plan for the site includes two sampling events per year for volatile organic compounds and semi-volatile organic compounds. Prior to mobilization to the site:

- Sample bottles are ordered from the analytical laboratory, Paradigm Analytical. The vials arrive in a cooler and are checked to ensure they are sealed and unbroken;
- Field instruments are charged and calibrated (not instruments are calibrated daily);
- Field Equipment is checked and cleaned to ensure no residue from previous use;
- Field Forms (Form H-2) are printed for each well to be purged and sampled.

The wells are gauged and purged prior to sampling.

- A 100-foot long Solnist interface probe is used to measure the depth to liquid and to determine if there is any Light Non-aqueous Phase Liquid (LNAPL) in the wells;
- A GeoTech Geopump peristaltic pump is used to pump 3 wells volumes (or until well goes dry) of liquid to a 55-gallon drum. The purged liquids are observed for separate phase liquid, color, odor and field parameters;
- The purge liquids in the drums are characterized and transported offsite for disposal under an existing profile to American's Recyclers Company

Following purging the samples are collected.

- Field measurements of dissolved oxygen, pH, temperature, oxygen reduction potential, and conductivity are collected.
- Low flow sampling is conducted for all sampling to ensure samples are representative of the in-situ water quality;
- Samples are packed in ice to preserve the samples; and
- Chain of Custody forms are completed for each well and sample vial;
- All samples are shipped to the laboratory the same day by courier.

The Laboratory Reporting includes batch QC and NYSDEC EDD formats.

APPENDIX J – HEALTH AND SAFETY PLAN

Health and Safety Plan

Former Osmose Facility

980 Ellicott Street, Buffalo, NY

Submitted to:

780 Ellicott Street, LLC
980 Ellicott Street
Buffalo, NY

Submitted by:

333 Ganson Street
Buffalo, NY 14203

January 2017

TABLE OF CONTENTS

Authorization Signatures

This site Health and Safety Plan (HASP) has been reviewed and approved by the individuals below. The undersigned certify that to the best of their knowledge this HASP meets the safety requirements as defined by the project specifications and all known applicable governing regulatory requirements.

John Yensan, President OSC	Date
Alen Trpevski, Project Manager OSC	Date
Donald Dustin CIH, CSP, Director HS&E OSC	Date

Conformance Signatures

All Individuals working on this Project, including subcontractors must read and sign

The following personnel have read and fully understand the contents of this site Health and Safety Plan and further agree to all requirements contained herein.

Name	Affiliation	Date	Signature

Emergency Contact List

Former Osmose Facility

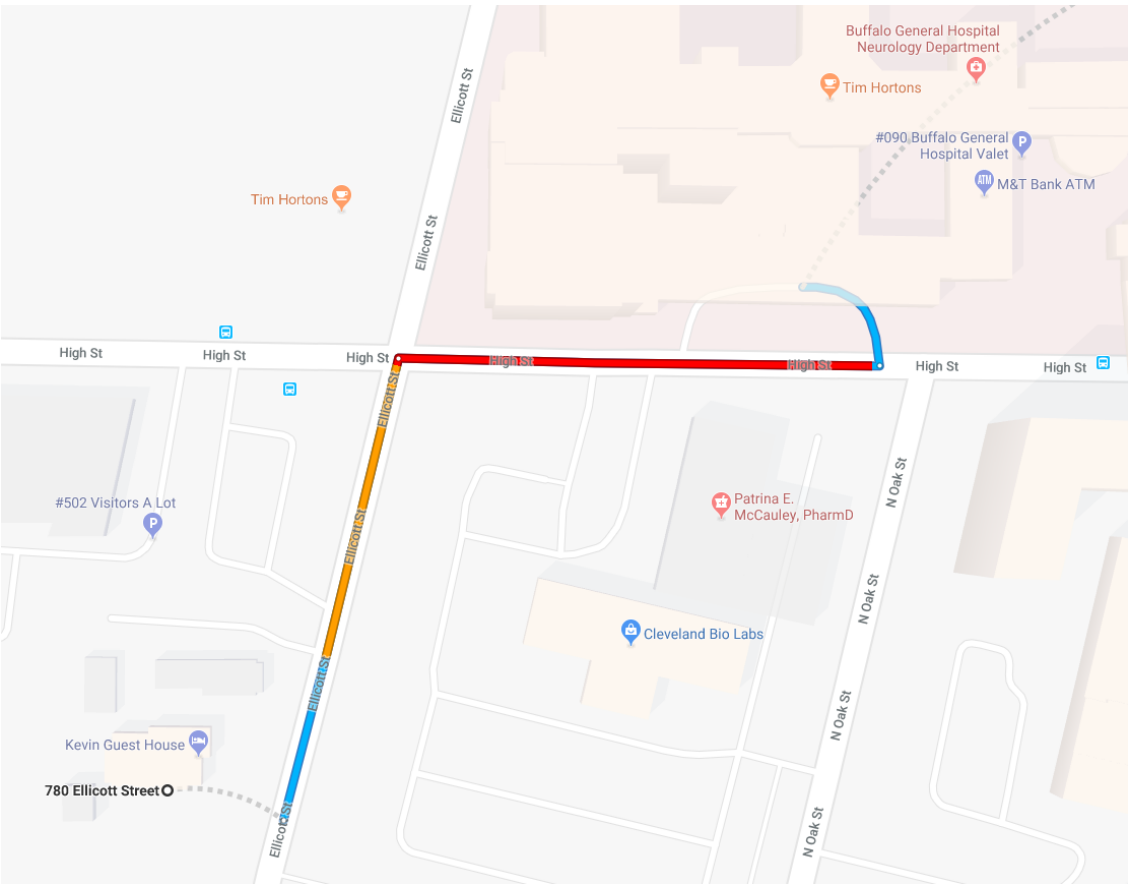
780 Ellicott Street

Buffalo, NY

AGENCY	Contact	Phone Number
OSC	Alen Trpevski Project Manager	716-818-3390
	John Yensan President	716-583-4400
	Donald Dustin Director HS&E	716-560-7542
Buffalo General Medical	Medical Emergency	911 (direct) 716-859-5600
Fire, Police, Ambulance	Dispatch	911
Utilities	Water Gas Electric	911

AGENCY	Contact	Phone Number
Site Emergency	Police, Fire Dept., Ambulance	911
Fire Department		911
Police Department & Security		911
Ambulance		911
Poison Control	American Association of Poison Controls	1-800-222-1222
US EPA Release Report Number	National Response Center	1-800-424-8802
HAZARDOUS MATERIALS	CHEMTREC	1-800-424-9300

LOCAL MEDICAL: BUFFALO GENERAL MEDICAL,100 HIGH STREET (DIAL 911 FOR EMERGENCY) (716) 859-5600



- Head north on Ellicott Street
- Turn right on High Street
- Turn left into receiving

OSC Medical Consultant:

Medcor, Inc.
4805 W. Prime Parkway
McHenry, Illinois 60050
800-775-5866

Non-medical Emergency:

Company Health
1173 Sheridan Dr.
Tonawanda, NY 14150
(716) 875-5495

INTRODUCTION

SITE/PROJECT BACKGROUND AND SCOPE

This Health and Safety Plan is specific to the remedial program for the Osmose Wood Preserving Site located in Buffalo, New York (hereinafter referred to as the "Site"). The Site is currently in the New York State (NYS) Inactive Hazardous Waste Disposal Site Remedial Program Site No. 915143 which is administered by New York State Department of Environmental Conservation (NYSDEC).

780 Ellicott Street, LLC entered into an Order on Consent on August 23, 2017 (Appendix A) with the NYSDEC to complete the monitoring, reporting and document the remediation of the site. A figure showing the site location and boundaries of this site is provided in Figure 1.

After completion of the remedial work, some contamination was left at this site, which is hereafter referred to as "remaining contamination". Institutional Controls (ICs) have been incorporated into the site remedy to control exposure to remaining contamination to ensure protection of public health and the environment. An Environmental Easement granted to the NYSDEC, and recorded with the Erie County Clerk, requires compliance with this SMP and all ICs placed on the site.

APPLICABILITY AND REFERENCES

OSC has developed the following site Health and Safety Plan (HASP) in accordance with the project contract requirements and all Federal, State and Local regulations. All operations and equipment used in conjunction with this contract shall, at a minimum, comply with the following:

- Project Contract Specifications
- Project Health and Safety Plan (This HASP)
- OSC Technical Work Plan
- OSHA 29 CFR 1910: Occupational Safety and Health Standards – General Industry
- OSHA 29 CFR 1926: Safety and Health Regulations for Construction
- EPA 9285.1-03: Office of Emergency and Remedial Response – Standard Operating Safety Guides
- NIOSH 85-115: Occupational Safety and Health Guidance Manual for Hazardous Waste Site Activities.
- OSC Corporate Health, Safety and Environmental Program Manual
- Orientation and Training (Supervision, Laborers, Operators & Visitors)
- Activity Hazard Analysis and/or Job Safety Analysis (AHA/JSA)
- Work Permit Process (Safe Work, Hot Work, Confined Space, Hoisting/Lifting, etc.)
- Standard Operating Procedures; Emergency Response, Reporting, Accident Investigation, Inspections, Audits, Work Procedures, Hazard Communication, Hot Work, Confined Space, Fire Prevention, Control of Hazardous Energy (Lockout, Tagout, Tryout), Excavations, Controlled Work Zones including decontamination, Ladders, Steps, Stairs, Scaffolding

Contractor/Vendor Safety Checklist, Heavy Equipment Operation, Forklift Operation, Powered Aerial Platforms
- Substance Abuse Policy
- Receive site orientation training regarding the project requirements contained in this HASP. Site orientation will be conducted by OSC's Health and Safety Officer (HSO) named in Section 2.0 of this HASP.
- Acknowledge in writing, on page 4 of this HASP titled Conformance Signatures and in the Honeywell Remediation & Evaluation Services (RES) Contractor Safety Workbook that they have received the site specific orientation and; therefore, have been trained in and understand the contents of this HASP and the general site safety requirements.

The health and safety protocol that is established in this HASP is based upon the known site conditions and or conditions anticipated to be present from established site data. This Project HASP is a living document that shall be updated and or revised over the term of this contract as warranted by change in site conditions, scope of work, methods and improvement measures. A copy of this approved HASP shall be maintained at the project site.

DEFINITIONS

The Owner: 980 Ellicott Street, LLC

The Contractor: OSC – Company retained by owner to conduct the Project.

The Project: Former Osmose Facility

The Project Site: The area designated as the Contractor work area.

Contractor Work Area: An area of the Project site which includes the support zones, access roads, staging areas, contamination reduction zones and exclusion zones.

Active Full Time Project Personnel: All personnel who are permanently assigned to the project and required to perform work. Does not include visitors or vendors visiting the site temporarily who are required to be escorted at all times by an authorized and trained project employee.

Qualified Person: A person with a recognized degree, or professional certificate, along with extensive knowledge and experience in the subject field who is capable of doing design, analysis, evaluation and specifications.

Competent Person: A person who is capable of identifying existing any predictable hazards in their surroundings/working conditions which are unsanitary, hazardous or dangerous to employees, and who has both knowledge and authorization to take prompt corrective measures to eliminate them.

Authorized Personnel: A person that is approved or assigned by OSC to perform a specific type of duty/duties, or to be at a specific location(s) at the Project site.

Stop Work Authority: HS&E personnel, qualified and competent persons, owner representatives and *all project employees* shall have the authority to stop work in any situation deemed unsafe to those working on the project site, or in any situation that poses a risk to the environment. Work will remain stopped until the involved parties correct their impact or conditions as per the requirements of this HASP.

Contamination Reduction Zone (CRZ): The CRZ is the transitional area between the identified contaminated and clean areas. The CRZ will be provided for the transfer of equipment and materials to and from the exclusion zone; the decontamination of personnel and equipment existing in the exclusion zone; and the physical segregation of the clean and contaminated work areas.

Exclusion Zone (EZ): The exclusion zone encompasses the areas of contaminates of concern (COCs); as well as any areas being utilized for the temporary storage of salvaged materials [ex. valves] and spoils to be discarded as waste. The purpose of the EZ is to limit access to only qualified and necessary personnel and manage the potential spread of COCs.

SITE VISTIOR REQUIREMENTS

A safe location, where all visitors can observe site activities of interest will be identified by the HSO. Anyone visiting the site will receive site-specific instructions from the HSO. All visitors shall be escorted by site trained personnel after signing in and completing orientation. Visitor training will include, at a minimum;

- OSC Project Safety Orientation and Honeywell general site orientation
- Project Hazard Communication system
- Job Hazard Analysis (JHA)/Activity Hazard Analysis (AHA) Review (as needed)
- Work Permit Process (as needed)
- Safety Meetings and Inspections
- PPE requirements;
- Decontamination procedures (as needed);
- Emergency procedures, and
- Any other site-specific information that the HSO deems necessary.

Any visitor wishing to enter an established contamination reduction zone (CRZ) or exclusion zone will be required to provide the HSO with documentation of medical monitoring and training equivalent to the requirements of this HASP for that area. Only authorized visitors with written proof that they have been medically certified and trained in accordance with project requirements will be permitted to enter the CRZ and/or exclusion area.

The only exception to this rule is for emergency personnel whom may enter the work area without fully complying with the requirements of this subsection. Emergency crews will be quickly briefed as to site conditions and hazards by the HSO.

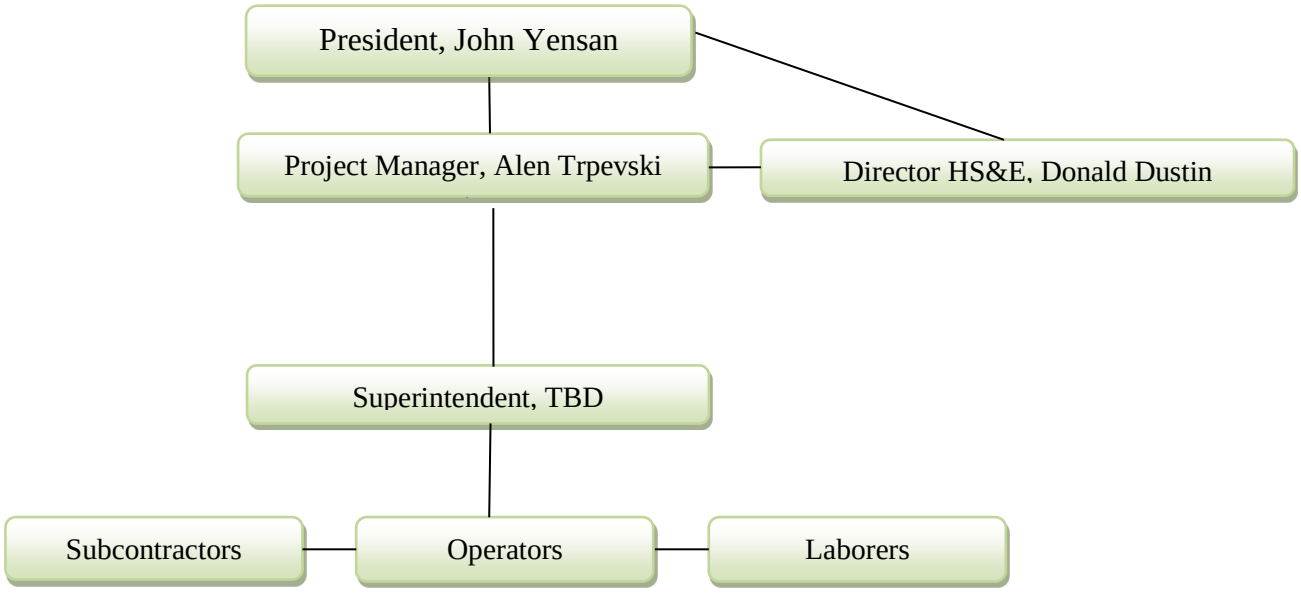
HEALTH and SAFETY ORGANIZATION

The following *OSC* management personnel will be assigned to this Project:

- President – John Yensan
- Project Manager – Alen Trpevski
- Director HS&E – Donald Dustin

In addition to the above listed management, *OSC* will provide the appropriate number of operators and laborers; as well as the required subcontractors for this project.

ORGANIZATION CHART



PERSONNEL RESPONSIBILITIES

PROJECT MANAGERS AND SUPERINTENDENTS

The Project Manager will be responsible for the overall direction and completion of this contract. The Project Manager reports to the President and will be responsible for managing and coordinating all project related activities; as well as serving at *OSC*'s primary contact with the Owner and/or Owner's Representative. The Site Superintendent will be responsible for overseeing contractor and subcontractor operations in the field. The Site Superintendent will report directly to the Project Manager.

Project Managers and Superintendents will be responsible for the following:

- Assure compliance with the Corporate HS&E Manual and this HASP during the initial stages of this Project.
- Implement the procedures and guidelines outlined in this HASP throughout the duration of the Project.
- Perform incident investigations. The Site Superintendent will notify Project Manager and the OSC Director HS&E immediately. The Director HS&E will identify the appropriate injury and/or incident documentation with help from the Superintendent. Documentation will be maintained on OSC's Incident Report (see attachment I).
- Perform and support site safety audits and address all errors.
- Provide incentive and motivation for safe work practices; as well as discipline for unsafe work practices.
- Ensuring a copy of this HASP is onsite at all times.
- Conduction, along with the HSO, initial site orientation meetings.

HEALTH AND SAFETY OFFICER (HSO)

The HSO will handle health and safety management on the project level and will report to the Director HS&E. Specific duties of the HSO include:

- Overall implementation, enforcement and maintenance of this HASP.
- Act as a point of contact for all project site health and safety concerns.
- Conduct initial training of the contents of this HASP; as well periodic training for when rules/regulations change, new equipment or procedures are introduced, additional skills are needed and new hazards are presented. Report observations in the daily safety meetings and update JHAs/AHAs and training accordingly.
- Conduct daily meetings regarding health and safety.
- Maintaining separation of any exclusion zone (dirty) from the support zone (clean) areas.
- Supervising any additional HS&E requirements that are needed for this Project.

The HSO will monitor the jobsite health and safety via inspection at the start and completion of each day's work; as well as monitoring the jobsite for this purpose throughout the day. The initial daily inspection will be recorded on OSC's inspection and audit form (Attachment I). Corrective actions and end-of-the-day inspection results will be recorded in the HSO's project safety log book.

Any HS&E deficiencies will be promptly corrected and reported to the Director HS&E. All corrective and improvement measures will be reviewed wit project personnel at the morning daily safety briefing. Intentional violations of the site HS&E regulations will be grounds for disciplinary action, which could include temporary suspension or termination of personnel and/or expulsion of vendor and/or subcontractor personnel from the site.

HS&E TECHNICIANS

The HSO will assign qualified technicians (air monitoring, material sampling, equipment specific and job design professionals) to each work crew or task in hazardous areas as warranted.

OSC CORPORATE MEDICAL CONSULTANT AND NON-EMERGENCIES

The Medical Consultant will be available to provide call-in emergency medical consulting to *OSC* personnel on an around-the-clock basis. Medical emergencies occurring during normal work hours will be provided by the local hospital (see above). Non-emergency medical support and OSC's Medical Consultant are:

Medcor, Inc.
4805 W. Prime Parkway
McHenry, Illinois 60050
800-775-5866

Company Health
1173 Sheridan Dr.
Tonawanda, NY 14150
(716) 875-5495

SUBCONTRACTORS

All subcontractors shall be prequalified according to ISNetworld and the OSC subcontractor/vendor prequalification requirements including Certificates of Insurance that meet or exceed the project contract requirements.

All subcontractor employees shall be required to attend a project safety orientation prior to commencing and starting work on site (See Training and Orientation Requirements of this HASP). Subcontractors are responsible for health and safety as it pertains to their operations at the project site and shall provide the required OSC HS&E supporting documentation. Documented proof of training shall be provided for all subcontractor employees. All subcontractors are responsible for providing their employees with the proper non-site specific PPE required to perform their work as well as ensure that all tools and equipment are properly inspected and maintained. Subcontractors are responsible for ensuring that their employees conform to all HS&E project requirements and applicable government regulations.

TRAINING and ORIENTATION

All personnel, including subcontractors, shall be provided with the training required to comply with this HASP. All training documentation (training certificates, attendance rosters) will be filed and

maintained onsite by the HSO and will be made available for inspection upon request. Training documentation will be kept in an organized manner for each individual worker.

All full time active project personnel working onsite must have received the following;

- Required safety training as defined by OSHA CFR 1926.21 for construction
- Initial and refresher training as require by OSHA CFR 1926.65
- Medical clearance - fit for work, (includes medical surveillance for specific occupations and probable contaminants, i.e. lead, benzene, and mercury) negative drug screen, clearance for respirator use, fit test and training for the type of respirator required.

Supervisor Training – in addition to the above all designated supervisors shall have as a minimum received training that covers competent person training for the specific operation they are responsible for (i.e. excavation trenching and shoring, confined space, rigging, hot work, etc.), first aid and CPR, record keeping, incident investigation, OSHA inspections, employee substance abuse i.e., reasonable suspicion), HS&E documentation requirements.

SITE SPECIFIC TRAINING

Documentation of training, provided by a qualified safety professional, will be maintained as necessary for the following topics;

- Job Safety Analysis & Safe work procedures (AHA/JSA Review)
- Project Hazard Awareness Training
- Contaminates of Concern (COC) training
- PPE requirements & Decontamination procedures
- Heat/Cold Stress (Symptoms, Protective Measures & Monitoring)
- Ladders and Powered Aerial Platforms
- Fall Protection (not anticipated for this project but will be made available as needed)
- Heavy Equipment Operation (Authorized, Unauthorized)
- Powered Industrial Fork Truck Operation (Authorized, Unauthorized) as needed
- Control of Hazardous Energy Lockout/Tagout (Procedures - Locks Tags and Lock Boxes) and Air Gapping Requirements (1 ft visible air gap).
- Incident reporting
- Emergency response & available services (medical, fire, inclement weather, tornado, bomb threat, signals and procedures)
- Hoisting and Rigging (as needed)
- Respirator use, maintenance, inspection, medical clearance and fit test (as applicable).
- Excavation Hazards and Protective Measures
- Confined Space (not anticipated for this project but will be made available as needed)
- Dust, Erosion and Sediment Control
- Noise Control Measures
- OSC's STAC program

- Authority to stop work (All Employees) and the Buddy System "No One Works Alone".

JOB SPECIFIC SPECIALIZED TRAINING & MEDICAL CLEARANCE

40 Hour HAZWOPPER training in accordance with OSHA CFR 1926.65 and subsequent annual refresher updates shall be required for all personnel involved with hazardous substance activities.

Employees that may be exposed to elevated levels of benzene as determined through on-site monitoring, will require a current medical evaluation (based on blood levels) for that contaminant concern as well as respiratory qualification (i.e. respirator medical clearance, fit test, and training). Benzene training/monitoring will be done in compliance with CFR 1910.1028.

MEETINGS

Attendance at all HS&E meetings will be documented and filed onsite.

- Daily Morning Safety Brief prior to the start of work "Tool Box Talk".
- Prior to the beginning of each work task and/or each work day, all involved workers shall be required to attend a "toolbox" HS&E meeting to review task-specific health and safety requirements pertinent to the days tasks (AHA/JSA review - job hazards and protective measures).

Weekly HS&E Meetings

All onsite Supervisory personnel shall be required to attend a weekly HS&E meeting, conducted by the HSO, to review Project and/or task specific procedures. Topics to be discussed at these weekly meetings include, but are not limited to;

- AHA/JSA – review for all definable features of work, hazards and controls
- STAC - employee work observations and recommendations
- Audit/Inspection findings, and recommendations for improvement
- Necessary training requirements and site work rules;
- Change in work practices and/or work conditions, incident reports;
- Precautions and work practices related to scheduled site activities;
- New or modified site wide procedures or requirements;
- Discussion of potential hazards or hazardous operations;
- Procedures on restricted areas;
- Equipment rules and requirements;
- Restrictions on the handling of materials;
- PPE requirements;
- Delegation of responsibility (emergency backup personnel, competent persons, etc.);

- Review of emergency response for anticipated situations (medical, fire, inclement weather, tornado, bomb threat, environmental release/spill) and communication methods (alarms, radio, voice, and hand signals).

SUBSTANCE ABUSE SCREENING

OSC requires pre-employment, reasonable suspicion and random substance abuse testing (random testing for project-assigned personnel only and as required by legal agreement). Employees as a minimum will undergo a NIDA 10 panel drug screen for illegal drugs before commencement of project work if required. Only substance abuse test results that are within 30 calendar days from site admittance shall be considered valid. All drug and alcohol screens shall be performed by laboratories certified by HHS under the National Laboratory Certification Program (NLCP). Only collection facilities that utilize DHHS specimen collection procedures that meet Federal requirements shall be used.

Pre-assignment drug screening will be completed no more than two weeks prior to commencement of work activities. Random drug and alcohol screens will be carried out during the course of the project at the rate of 10% employees per month in accordance with Honeywell's Substance Abuse Policy.

NOTE - Prescription drugs taken without an authorized prescription for use is considered an illegal drug. Also, in case of any injury, incident, or emergency, employees may be required to undergo a 10-panel screen for illegal drugs, alcohol (breath), or prescribed medication. Submission to substance abuse testing is a condition of employment. Failure or refusal to submit to substance abuse testing is treated the same as a positive result. All reports will be maintained at the main office. Any positive results will be referred to OSC Senior Management for further action.

PROJECT OVERVIEW AND TASK RISK ANALYSIS

TASK/RISK ANALYSIS

An Activity Hazard Analysis (AHA)/Job Safety Analysis (JSA) shall be developed for every significant feature of work which shall break jobs down into individual tasks defining the potential hazard of that task and the proper protective and control measures that shall be taken to eliminate the hazard. AHA's shall be submitted with the daily work permit to the Safety Representative for their review. AHA's shall be modified as warranted by safe work observations, audit and incident investigation. Assessment of the work hazards associated with the scope of work for this project is provided in the Table 1.0 below. PPE requirements for all work shall be primarily in level D; ANSI approved hard hat, safety glasses, hearing protection with elevated noise exposures (i.e., working with power tools or near sources of loud noises), abrasion resistant gloves, safety toed boots or safety toed rubber boots (dependent on hazard exposure), high visibility traffic vest or equivalent high visibility clothing, and/or disposable coveralls (modified D). Specific information relating to the potential chemical, physical, biological and radiological hazards is provided in Table 1.1.

TABLE 1.0
JOB HAZARD/EXPOSURE ASSESSMENT (See also attachment II (AHA's))

	Potential Exposure
Mobilization and site preparation; office/equipment trailer setup, establishment of controlled work zones: hazard warning signs, OSC designated work area signage including barricades and area delineation, address safe work surface needs, add lighting, traffic controls, dust, fire and erosion controls.	Moderate
Demolition/removal of surface features (asphalt, concrete, retaining wall, etc.)	Moderate
Locate, expose, and protect known active utilities	Moderate
Demolition/removal of pre-selected utilities	Moderate/High
Install utilities	Moderate/High
Monitoring well abandonment	Moderate
Groundwater sampling	Moderate
Site restoration	Low
Demobilization	Low

Low: Non-intrusive work – Minimal hazard/chance of exposure. Slight: Non-intrusive work / Possible HS&E hazards with tools. – Little chance of exposure. Moderate: Non-intrusive work / Possible HS&E hazards with powered tools, heavy equipment and/or working near or in water – Little chance of exposure to contaminants. Moderate/High: Intrusive work / Possible HS&E hazards with equipment – Exposure to contaminants is possible. High: Intrusive work / Possible HS&E hazards with equipment – Exposure to contaminants is probable.

CONTAMINATE HAZARDS

Existing Site Hazards

Based on information provided in the project contract documents and initial site inspection, semi-volatile compounds, metals, polycyclic aromatic hydrocarbons (PAHs), and non-aqueous petroleum liquid (NAPL) contaminated soils are the primary health hazards. Depending on the contaminants discovered work methods may change and PPE requirements may be upgraded from level D to a modified level D or level C, including additional exposure monitoring requirements beyond those identified in this HASP.

Work place monitoring of VOCs will be done using a MultiRae Lite PID for real time monitoring. If the action level 1.5 ppm is exceeded, then personnel will be upgraded to Level C PPE. Level C PPE will include half face respirator with HEPA/VOC cartridges. Confirmatory samples will be collected and analyzed for BTEX and Lead in order to verify PPE requirements.

Hydrogen sulfide will be monitored continuously for any personnel working within a trench.

SITE CHEMICAL HAZARD SUMMARY			
NAME	EXPOSURE	DESCRIPTION	PEL/TLV/IDLH*
Metals/as lead**	Ingestion/Inhalation	Metal/lead contaminated soils. Not fully characterized regarding metals and concentrations.	PEL: 50 ug/m^3 AL: 30 ug/m^3
Benzene	Inhalation/Dermal /Ingestion	Benzene contaminated soil. Excavation areas have been characterized but maximum levels unknown	TLV: 0.5 ppm Ceiling: 25 ppm STEL: 2.5 ppm
Toluene	Inhalation	Toluene contaminated soil. Excavation areas have been characterized but maximum levels unknown	TLV: 20 ppm Ceiling: 300 ppm
Ethyl benzene	Inhalation	Ethylbenzene contaminated soil. Excavation areas have been characterized but maximum levels unknown	TLV: 20 ppm
Xylene	Inhalation	Xylene contaminated soil. Excavation areas have been characterized but maximum levels unknown	PEL: 100 ppm STEL: 150 ppm
NAPL as TPH	Inhalation/Dermal Ingestion	Total petroleum hydrocarbon contaminated soil. Many contaminated areas have been identified.	Not Established
PAH as Naphthalene**	Inhalation/Dermal	PAH/naphthalene contaminated soils. . Excavation areas have been characterized and maximum levels unknown	PEL: 10 ppm
Notes: OSHA Permissible Exposure Limit (PEL) based on 8 hour, time weighted average (TWA), C = Ceiling, TLV = Threshold Limit Value, IDLH – Immediately Dangerous to Life or Health, Primary exposure given 1st.			

*most conservative value(s) shown
** Shown as the conservative most likely exposure

Chemicals Brought Onsite

The use of chemical products onsite will be in compliance with the requirements set forth in OSHA 29 CFR 1910.1200 (OSHA's Hazard Communication Standard), all applicable Federal, State and Local regulations and the project containment procedure provided in this HASP. The potential hazards associated with these products will be mitigated through site specific training, administrative controls (e.g. proper labeling and storage) and proper use of the prescribed PPE.

Safety Data Sheets (SDS) or Material Safety Data Sheets, for all chemicals brought onsite, will be available for review in OSC's field office at the project site. All chemical products shall be properly labeled which shall include, product name, manufacturers name, hazard warning, identifier and hazard pictogram.

The following table provides exposure guidelines for common hazardous chemicals that may be brought to the site, if required, for use during this project. The HSO will be notified before any new chemicals (chemicals not listed on the below table) are brought onsite.

HAZARD SUMMARY FOR CHEMICALS BROUGHT ONSITE					
Substance	**Route of Entry**	**Exposure Symptoms**	**Treatment**	**8 Hour TWA**	**STEL and IDLH**
Diesel Fuel	• Skin contact • Eye contact • Inhalation • Ingestion	• Harmful if comes in contact with or is absorbed throughout the skin. • Contact may cause skin and eyes irritation. • Prolonged or repeated exposure may cause liver or blood forming organ damage. • May cause skin irritation or dermatitis.	• Eyes: Irrigate immediately. • Skin: Flush with soap and water. • Inhalation: Remove victim to fresh air and provide respiratory support if needed. • Ingestion: Seek medical attention.	300 ppm	STEL: 500 ppm
Grease, Oil and Hydraulic Fluids	• Skin contact • Eye contact • Inhalation • Ingestion	• May be slightly irritating to skin and eyes. • Inhalation may cause headaches. • Ingestion could result in nausea and vomiting.	• Eyes: Irrigate immediately. • Skin: Flush with soap and water. • Inhalation: Remove victim to fresh air and provide respiratory support if needed. • Ingestion: Seek medical attention.	N/A	N/A
Gasoline Petroleum Distillates	• Skin contact • Eye contact • Inhalation • Ingestion	• Acute: Central nervous system effects. Chemical pneumonitis if aspirated into the lungs. • Chronic: Benzene is a confirmed carcinogen. Long term exposure caused kidney and liver cancer in rats/Chemical.	• Eyes: Irrigate immediately. • Skin: Flush with soap and water. • Inhalation: Remove victim to fresh air and provide respiratory support if needed. • Ingestion: Seek medical attention.	300ppm	500ppm STEL

GENERAL PHYSICAL HAZARDS AND STANDARD PROTECTIVE MEASURES

(See Attachments AHA/JSA for more specific detail):

Activity: *All general work activities* (manual ground laboring, operating equipment, supervising, inspecting).
Potential Hazard: noise, slips, trips and falls, struck by, pinched, falling debris, shock, heat/cold stress

Procedures to Mitigate Hazard: Minimum standard site required PPE (Level D ANSI rated hard hat, eye protection, safety boots, high visibility traffic vest or equivalent clothing, cut/abrasion resistant gloves. Hearing protection (when "you need to raise your voice to hear yourself talk") is required whenever using powered hand tools, when operating heavy equipment with no enclosed cab or in the vicinity of loud noise sources. Inspect work area for hazards, overhead power lines, obstructions, slip, trip, fall hazards, uneven surfaces, and vermin. Safe up work area; flag, mark, delineate and cover, identify with appropriate hazard warning signs. Clearly label open pits, wells and other fall hazards (soft barricade 15 feet back, hard barricade 2 feet back). Practice extreme caution in all work areas including vegetation covered areas. Watch footing during equipment access/egress and when moving through the work area, walk with purpose, pick feet up and setup down, keep hands out of pockets, use hand rails, stay on designated paths, and don't take short cuts through the site. Avoid stepping or standing on uneven or unsteady surfaces. In high heat situations stay well hydrated. Personnel will adhere to the heat and cold stress precautions provided in this HASP. All employees have stop work responsibility and authority for safety concerns.

Activity: *Working In or Near Water Hazards* (boat/barge, shoreline and bank work)
Potential Hazard: Drowning
Procedures to Mitigate Hazard: Review of AHA/JSA prior to starting work. Establish controlled work zone for water hazard work (warning line 15 feet from water's edge). When working within the control work zone or on boat/barge US Coast Guard-approved life jacket or PFDs shall be worn. Prior to and after each use, the buoyant work vests or life preservers shall be inspected for defects which would alter their strength or buoyancy. Defective units shall not be used. In addition to wearing life jackets, personnel will be required to have available Coast Guard approved 30-inch life rings with a minimum of 90-feet of line. On shore, life rings will be spaced at intervals not to exceed 200 lineal feet. The life rings shall be placed at the point of work activity. An emergency skiff will be available while working adjacent to the water's edge.

Activity: *Manual Material Handling*
Potential Hazard: Strain, pinched, struck by, lacerations,
Procedures to Mitigate Hazard: Hands and feet clear of pinch points, standard site required PPE and gloves with hazard exposure, Observe the OSC lifting program. Use good body mechanics when lifting, lift objects with your legs and not your back, keep the back straight and object lifted the power zone. Do not twist, pick your feet up and turn. Utilize equipment whenever possible - forklift, drum cart or other appropriate equipment. Seek assistance if it is needed.

Activity: *General traffic from operations* (heavy equipment, trucks, pedestrian, etc.)
Potential Hazard: Struck by, crush, fire, and burn
Procedures to Mitigate Hazard: Standard site required PPE. Traffic barricades and directional signs, provide ground spotters/flagman equipment traffic, with high visibility, traffic vests or equivalent clothing. Minimum 75 ft. clearance from heavy equipment operations, demolishing, shearing, separating and loading out. Develop and implement a traffic control program when site activities occur adjacent to non-OSC vehicular traffic.

Activity: *Site maintenance, hazardous materials storage and house keeping*
Potential Hazard: Slip, trip, fall, fire, burn, chemical hazards, eye, skin, struck by
Procedures to Mitigate Hazard: Personnel will properly store all equipment. Remove all scrap material from the work area and place in designated storage/lay down areas for disposal. Delineate work areas and identify with appropriate Hazard Warning Signs. Handling of materials per products SDS and developed Proper storage of all flammable and combustible materials; > 20 feet from ignition sources or protected with ½ hour fire barrier (indoors). Likewise, all flammable/combustible liquid will be segregated from the ignition source >20 ft. Store all hazardous materials in approved containers. Keep all solvent wastes, oily rags and liquids in fire resistant containers. One 20 lb. ABC Extinguisher should be provided in storage areas (within 75 ft. away no closer than 20 ft.).

Activity: *Operation of hand and or power tools*
Potential Hazard: Eye, hand, face, foot injuries, electrocution, struck by, fire, burn.
Procedures to Mitigate Hazard: Tool use per Mfg.'s guidelines. Inspect tools before use; verify that guards and safety devices are in place before, during and after operation. Use GFCI plugged in at source for all corded tools. Red tag and remove all defective tools from service. Maintain and inspect the tools per the manufacturer's recommendations. All personnel will utilize the proper eye protection.

Activity: *Operating Heavy Equipment* (Excavators, Compactors, Dozers, Skid Steers, Rough Terrain Fork Trucks, Powered Aerial Platforms and Trucks.
Potential Hazard: Struck by, caught between, crushed, rollover, fire, burn
Procedures to Mitigate Hazard: Equipment operation only by trained and authorized operators. Before use, any machinery or mechanized equipment will be inspected by a competent person and certified to be in safe operating condition. OSC will designate competent persons to be responsible for the inspection of machinery and equipment, daily and during use, to ensure its safe operating condition. Any machinery found to be unsafe will be dead lined; its use will be prohibited until the unsafe conditions have been corrected. Inspection of the machine/equipment will be conducted at the beginning of each shift, during which the equipment may be used, to determine that the brakes and operating systems are in proper working condition. All inspections will be documented. Only designated personnel, with appropriate training and authorization shall operate machinery and mechanized equipment. Any observed equipment deficiencies, that will affect their safe operation, will be corrected before continuing operations. A controlled work zone shall be established for demolition, sorting and loading operations. Likewise a trained ground spotter shall be provided to assure personnel stay clear when an operator's rear view is obstructed. Dust control measures (active water misting during intrusive activities with water hose or equivalent misting equipment). Utilize the appropriate warning signs and backup alarms. All site personnel working in the vicinity of heavy machinery will use reflective clothing (i.e. vests) to alert operator of their whereabouts. See appropriate AHA for details (hoisting, heavy equipment operation, etc.).

Activity: *Excavating and Working In Excavations*:
Potential Hazard: Cave in, collapse, chemical exposure, struck by, entrapment

Procedures to Mitigate Hazard: Per OSHA requirements, provide protective systems of trenches when deeper than 5 feet and entry is necessary. Inspect the excavations/trenches regularly for changing conditions. Ensure that the material from the excavations/trenches is being placed away from the edge, to prevent cave-ins and pit (instability (> 2 feet back). Backfill the excavations as require by the approved contract requirements, to minimize the number of open excavations and control zones.
All excavation work shall be supervised by a competent person who will determine what protective measures are required, what those controls will be and how they will be implemented (testing, monitoring, benching, sloping, shoring, means of egress, dewatering, etc.). The competent person will inspect the excavations and controls to ensure reinforced structures are barricaded or marked, with barricade tape or traffic cones, during active excavations. If an excavation must remain open prior to backfill, those excavations must be fenced or barricaded (> 6 ft. from edge). Compliance with OSHA 29 CFR 1926 Subpart P will be maintained.
Atmosphere monitoring will be conducted prior to entry and during work activities in excavations/trenches.

Activity: *Working around or near utilities* (Utilities hazards overhead and or underground).
Potential Hazard: Stored Energy Hazards (electrical, gas, water, sewer, etc.).
Procedures to Mitigate Hazard: Request utility mark out, notify FPO utility authority a minimum of three days prior to performing any intrusive or demolition activities. Prior to work beginning, ensure that all utility lines are not energized.

Activity: *Servicing equipment*.
Potential Hazard: Uncontrolled release of hazardous energy (electrical, mechanical, kinetic, pressure, heat, chemical, any type of stored or potential energy).
Procedures to Mitigate Hazard: The lock-out/tag-out procedure provided in this HASP will be followed when working on machines and equipment in which the unexpected energizing / start-up of the machines or equipment, or release of stored energy could cause injury to employees.

Activity: *Electrical Work*
Potential Hazard: Electrocution, burn
Procedures to Mitigate Hazard: Affected personnel will use approved grounding and bonding procedures. Guard and maintain all electrical lines/cords. Tag and remove damaged equipment from service.
Temporary electrical power used for this project will conform to NFPA 70 and ANSI C2. When possible, motorized vehicles will be grounded. Air monitoring and sampling equipment will be rated intrinsically safe for Class I, Division 1, Grounds A, B, C and D areas. Portable electrical equipment will be protected by ground fault circuit interrupters (GFCI). Clearances to adjacent overhead transmission and distribution electrical lines will be sufficient for the movement of vehicles and operation of equipment (see job specific AHA).

Activity: *Working from elevated heights* (> 6 feet) with an open edge to the next lowest.
Potential Hazard: Fall

Procedures to Mitigate Hazard: Not anticipated for this project however, all work form elevated heights shall be performed as supervised by a competent person. In all cases proper fall protection shall be utilize; personal fall restraint/arrest systems. Maintain 100% tie-off.

Activity: *Abatement Activities* (Hazardous Material Removals and Controls)
Potential Hazard: Exposure Hazards (skin, eye, lung), fire, burn
Procedures to Mitigate Hazard: All handling of hazardous materials shall be according to Federal and State guidelines established for the material (lead, mercury, benzene, etc.) See task specific AHA and work plan to be developed as required.

Activity: *Torch Cutting*
Potential Hazard: Fire, Burn, Respiratory, Struck by, Hearing
Procedures to Mitigate Hazard: Only trained and authorized torch cutters. Standard site required PPE with appropriate half face respirator (P100/VOC Filters) burning gloves, burning shield minimum 3.0 w/intermittent light torch cutting to 5.0 shield heavy long term torch cutting, burning jacket, FR pants. Observe all precautions and work procedures as required by the Hot Work Permit Procedures for defined hot work (See Hot Work Permit Procedures).

Activity: *Monitoring Well Abandonment*
Potential Hazard: Slip, trip, fall, fire, struck-by, crush, rotation, chemical hazards, eye, skin,
Procedures to Mitigate Hazard: Personnel will properly store all equipment. Remove all scrap material from the work area and place in designated storage/lay down areas for disposal. Delineate work areas and identify with appropriate Hazard Warning Signs. Handling of materials per products SDS. Define exclusion zone, keep hands/limbs away from rotating drill string. PPE must include face shields when grouting wells.

Activity: *Groundwater Sampling*
Potential Hazard: Pinch points, traffic, chemical hazards
Procedures to Mitigate Hazard: Standard site required PPE with both work and chemical resistant gloves. Traffic barricades and directional signs, provide ground spotters/flagman equipment traffic, with high visibility, traffic vests or equivalent clothing. Minimum 75 ft. clearance from heavy equipment operations, demolishing, shearing, separating and loading out. Develop and implement a traffic control program when site activities occur adjacent to non-OSC vehicular traffic. Containerize purge water, have decontamination set up prior to commencing sampling activities. Do not eat or drink until hands washed/decontaminated.

BIOLOGICAL HAZARDS

Bites and Stings

Animal bites or stings are usually irritants that cause localized swelling, itching and minor pain and can be handled with first aid treatment. The bites of certain snakes, lizards and spider can contain sufficient poison to warrant medical attention. Diseases, that may require medical attention, can

be transmitted from some animal bites. Examples are rabies (mainly from dogs, skunks, raccoons and foxes), Lyme disease (transmitted from ticks) and encephalitis (transmitted from mosquitoes).

Personnel with known allergic reactions to bee stings should carry the appropriate medication and must notify the Director HS&E and HSO of his/her condition prior to reporting for work at the site.

Ticks, Chiggers and Lyme disease

Ticks and chiggers may be present in vegetated areas during the spring, summer and fall seasons. Preventative measures include protective clothing that covers the entire body, tucking pant legs into boots or socks and tucking a long sleeved shirt into pants; head/hair protection; and the use of insect repellant containing DEET on all exposed areas and coveralls. Project personnel should check their bodies thoroughly for ticks and should bathe soon after returning home. Remove any ticks carefully, using a gentle firm, tugging motion with fine tweezers. **Do not kill the tick before it has been removed.** Save the tick (place in zip lock bag for freezing and lab test) and monitor their bites, checking for a rash and any other symptoms for up to eight weeks after the bite. If site employees feel they have been bitten they should notify the HSO immediately.

Snakes

If project personnel encounter a potentially dangerous snake – stop work, remove yourself and other workers from the immediate area and notify the Superintendent. The supervisor will contact an appropriate site representative to request that the hazard be removed. Do not re-enter the work area until you have been cleared by the HSO to do so.

Toxic Plants

Poison Ivy, poison sumac and poison oak may be present during the spring, summer and fall seasons. Avoid contact with these plants. If a project worker has come in contact, the affected area should be washed thoroughly with soap and cool water. Notify the HSO immediately.

Bloodborne Pathogens

29 CFR 1910.1030 requires that all first aid responders who may come in contact with potentially infectious materials be trained and protected from exposure. Furthermore, there is a risk for any site employee to be exposed from discarded needles and/or contaminated sharps.

All employees on this project should;

- Avoid contact with any blood or potentially contaminated object;
- Use caution when picking up or moving objects (stones, brush, debris, etc.);
- Wear leather gloves at all times and do not touch suspect objects; an
- Contact the HSO who will contact the manager to remove suspect objects.

In addition to the above requirements, the following will apply;

- All personnel will be required to receive bloodborne pathogen awareness training.
- No eating, drinking, smoking, or applying lip balm will be permitted in the designated work, decontamination and first aid areas.
- All first aid kits will be equipped with the proper PPE (i.e. gloves, CPR shields and respirators).
- If a garment (gloves included) is infiltrated by blood, or other potentially infectious materials, the garment(s) will be immediately removed, or removed as soon as possible.
- After an exposure incident, a confidential medical evaluation and follow-up will be conducted and immediately available to the employee. The HSO will coordinate all medical arrangements.

Radiological Hazards

No radiological hazards are expected during this project.

SITE SECURITY

All onsite personnel and visitors will be required to sign-in and sign-out, at the project support trailer, before entering designated work sites. OSC will maintain, onsite, all records of site access to exclusions and CRZ areas. Visitors will be required to knowledgeable of and conform to this HASP, prior to accessing controlled work zones. Vehicular traffic will be permitted in the designated parking area as permitted by the owner. Access to the controlled work and traffic zones is restricted to authorized vehicles only.

SITE LAYOUT

See project work plan submitted under separate cover.

BUDDY SYSTEM

Working alone is prohibited. All field personnel will be assigned a co-worker who will watch for hazards or problems his/her co-worker might encounter. Communication between employees must be maintained at all times. Workers will pre-determine hand signals, or other means of emergency signals, for communication when respiratory protection or distance makes communication difficult. Visual contact must remain between the two co-workers; they must remain in close proximity to each other in order to assist in case of an emergency.

SITE COMMUNICATIONS PLAN

Each work crew, operator and manager will be equipped with a two-way radio. In the event of an emergency situation, and two-way radio communication is not available, oral and visual safety signals have been established to protect project personnel. These signals will be presented to personnel for all phases of operation before conducting any task. These safety signals will ensure quick communication during adverse or emergency situations. Examples of established signals, and their meanings, are provided below.

Visual Signal	Indication
Hand gripping throat	Out of air; can't breathe
Wave hands over head from side to side	Attention: stand by for next signal
Swing hands from the direction of person receiving the signal to directly overhead and through a circle	Come here
Pointed finger with extended arm	Look in that direction
Grip partner's wrist with one or both hands	Leave the area immediately
Hand on top of head	Need assistance
Thumbs up	Ok, I'm alright, I understand
Thumbs down	No, negative
Audio Signal	**Indication**
Short blast of air or vehicle horn	Caution, look here
Three long blasts of air or vehicle horn	Leave the area

SAFE WORK PRACTICES

Project personnel will observe the standard operating HS&E procedures that are explained in this HASP. The standard HS&E regulation notices provided in this HASP will be posted within the Project support area and at other locations onsite, as deemed appropriate.

WORK AREAS

The Project site will be divided, as needed, into the following three major zones.

Exclusion Zone: The exclusion zone will encompass the areas of concern; as well as any areas being utilized for the temporary storage of excavated soil that could be contaminated with the identified regulated materials. The minimum level of protection in the exclusion zone will be a modified Level D. Level C PPE will be available onsite and personnel trained, medically qualified, trained and fit-tested in the event an upgrade of protection is needed as determined by potential for exposure above established regulatory limits.

Contamination Reduction Zone (CRZ): A CRZ will be created in cases where contaminated materials are expected. The CRZ is the transitional area between the identified contaminated and clean areas. The CRZ will be provided for the transfer of equipment and materials to and from the exclusion zone; the decontamination of personnel and equipment existing in the exclusion zone; and the physical segregation of the clean and contaminated work areas. The CRZ will include an equipment decontamination area and/or pad and personnel decontamination process.

Personnel and equipment decontamination will be conducted in accordance with this HASP. Any disposable, single-use sampling equipment will be collected and properly disposed of in accordance with state and federal regulations. Non-disposable sampling equipment will be decontaminated at a decontamination station that will be adjacent to the exclusion zone, or at the decontamination pad.

Support Zone: Utility trailers will be located in designated support area(s) which shall be kept clear of contamination and potentially contaminated equipment/material.

The HSO will be responsible for establishing, delineating, maintaining and controlling access to the established work areas and support zones in accordance with this HASP.

PERSONAL PROTECTIVE EQUIPMENT (PPE)

PPE will be selected, used, maintained and stored in accordance with OSHA 29 CFR 1926 Subpart E, and applicable manufacturer recommendations. Engineering, administrative and/or work practice controls to minimize hazards will be implemented where feasible, followed by PPE.

MINIMUM LEVELS OF PROTECTION

Level D personal protective equipment that is to be worn at all times by project personnel at the site includes;

- ANSI approved safety glasses with side shields;
- Leather safety boots (ANSI or ASTM)
- Rubber boots w/wet hazards or disposable booties
- Hardhat (ANSI Rated)
- High visibility vest or equivalent high visibility clothing
- Appropriate clothing (long sleeve shirts and pants) and Tyvek coveralls as required
- Gloves (leather at all times), nitrile as required
- Hearing protection (around powered equipment or using powered hand tools)
- Tick protection when working near shore or when grubbing

Modified D PPE will be used when the possibility of dermal hazardous chemical contact, but not inhalation exposure exists and includes;

- The above minimum PPE
- Mono-goggles with face shield in chemical splash situations
- Impermeable chemical barrier gloves (i.e., nitrile) if handling contaminated material
- Coated disposable coveralls (Tyvek or equivalent) if exposure to hazardous chemicals exits
- Face shield and safety glasses with work where the potential for flying debris hazards is present (i.e., chipping, grinding, steel on steel impact activities)

Level C PPE will be used if there is the possibility of inhalation of hazardous concentrations (or unknown concentrations) of vapors or fumes at or above OSHA PELs. Level C PPE includes;

- Modified level D PPE
- Air purifying respirator (half-face)
- Appropriate filtering media (particulate, mercury, organic, or combination cartridge)

NOTE: OSC employees are given the option of using a filtering facepiece for voluntary use.

Level B is not anticipated for this project but may be made available if necessary.

The following table describes the minimum levels of protection that are anticipated for this project.

Minimum Site Specific PPE Levels		
Work Activity	**Initial Level of Protection**	**Action Level for PPE Upgrade/Downgrade**
Mobilization and site preparation; office/equipment trailer setup, establishment of controlled work zones: hazard warning signs, OSC designated work area signage including barricades and area delineation, address safe work surface needs, add lighting, traffic controls, dust, fire and erosion controls.	Level D	Nothing foreseeable
Demolition/removal of surface features (asphalt, concrete, retaining wall, etc.)	Level D	Upgrade to Level C if conditions can not be met as defined in CFR 1926.1153 Table 1
Locate, expose, and protect known active utilities	Level D	Northing foreseeable
Demolition/removal of pre-selected utilities	Level D	Upgrade to modified Level D if conditions warrant
Monitoring well abandonment	Level D – Modified	Nothing foreseeable
Groundwater sampling	Level D	Nothing foreseeable
Site restoration	Level D	Nothing foreseeable
Demobilization (Fall 2017 & Spring 2018)	Level D	Nothing foreseeable

The minimum levels of protection are to be considered preliminary and may change based upon initial exposure assessment and routine assessments as work progresses. No change to the specified level of protection will be made without the approval of the HSO and in agreement with the Director HS&E.

SELECTION OF PROTECTION LEVELS

PPE will be used when project and support activities involve known, or suspected, contamination; when vapors, gases or particulates may be generated by site activities; or when direct contact with skin may occur. Respirators protect the lungs against airborne toxicants. Chemical resistant clothing protects skin from contact with harmful and absorbable chemicals.

Level D: Protection will be used when no airborne contaminant exposure is likely and job functions do not require the use of respiratory equipment or chemical resistive clothing. The equipment for this level of protection is described above and is expected to be the minimum for the project.

Level D Modified: Protection will be modified when additional contact hazards have been identified such as splash hazards and contaminated or nuisance dust. See the description above.

Level C: Protection that will be provided when airborne contaminants have been identified and which require the use of air purifying respiratory equipment to keep exposures below health-based limits. Examples of respiratory protection for this project are half or full-face air purifying respirators with appropriate cartridges (i.e. P-100 cartridges for lead particulate, Black Organic Vapor – VOC, Brown/Gold Acid Gas, etc.). Likewise mercury excavation work may require an approved P100/vapor combination cartridge.

Level B: Protection that will be provided when the highest level of respiratory protection is needed with some body or skin protection. Equipment for this level of protection will include a minimum of the following:

- SCBA, PAPR or airline respirator depending on contaminate and situation
- Chemical resistant protective clothing for hazards identified.
- Hardhat or helmet for hazards identified.
- Chemical resistant gloves with liners for hazards identified.
- Chemical resistant safety shoes or boot covers for hazards identified.

Level B is not expected for this project.

HEARING PROTECTION

Project personnel will be provided hearing protection and required to use it whenever conducting tasks where exposures may exceed 90 dB as indicated in the following table;

	Sound Level at Operator		
Equipment	Average, dB	Range	TWA, dBA
Earth Moving:			
Front End Loader	88	85-91	
Back Hoe	86.5	79-89	
Bull Dozer	96	89-103	
Roller	90	79-93	
Scraper	96	84-102	
Excavator	86	83-92	89.6*
Truck	96	89-103	
Paver	101	100-102	
Power Units:			
Generators	<85		
Compressors	<85		
Impact:			
Pile Driver (diesel/pneum.)	98	82-105	
Pile Driver (gravity)	82.5	62-91	
Pneumatic Breaker	106	94-111	
Hydraulic Breaker	95.5	90-100	
Pneumatic Chipper	109		
Other Equipment			
Compactor/Vibrator	94.5	85-98	86.1
Compressed Air Blower	104		
Power Saw	88.5	78-95	
Electric Drill	102		

Noise Standards	Noise Level
OSHA (at worker's ear	90 dB (A) TWA
Day Time Community (at property line)	65 dB (A)

*Open windows

OSC will monitor sound levels for various tasks and operations conducted during the project to both verify that the levels cited above are accurate and to serve as exposure indicators. Sound levels will be measured for each task or operation reasonably expected of having noise levels that could result in exposures above 90 dB as an 8-hr. TWA. Regardless of the results however, OSC employees will be required to use hearing protection under pre-defined conditions.

Hearing protection will be required whenever an employee is either using a powered tool or working in the vicinity of loud noises (excavators, sheet driving, or working in heavy equipment with windows open). Hearing protection may be obtained from the HSO. Each employee is responsible for wearing hearing protection when required. Replacements may be obtained from the HSO, if necessary. Employees are encouraged to use hearing protection voluntarily as long as communications are not compromised.

RESPIRATORY PROTECTION

Project personnel will be required, when necessary, to use respiratory protection to reduce their exposure to airborne hazardous substances. The standard requirements that determine the selection and use of respirators depend on the hazards present. Respirators will also be made available, at the project work area, for emergencies.

Only respirators that are approved by the Mine Safety and Health Administration (MSHA) and the National Institute for Occupation Safety and Health (NIOSH) are allowed. Use must follow the regulatory requirements set forth by OSHA 29 CFR 1910.134 and OSHA 29 CFR 1926.103.

OSC employees may voluntarily use a filtering facepiece in conditions when respiratory protection is not mandatory. Employees that are medically cleared to use an APR may wear any type respirator voluntarily.

Medical Clearance & Fit Testing

All personnel, which are assigned to tasks where a respirator is needed, must have prior medical clearance. Medical evaluations and fit testing are provided by *OSC*. Fit test records and all project personnel medical documentation will be filed and maintained onsite, by the HSO.

Medical limitations and restrictions will be strictly enforced. No employee will be permitted to use a respirator if he/she has any facial abnormality or facial hair that may affect the fit or seal of their respirator.

Training

All personnel who are required to wear a respirator will receive training (in addition to required annual training) from the HSO on the use, maintenance, proper care and inspection of their respirators. Attendance at all training will be documented. Attendance records will be maintained onsite by the HSO and will be available for inspection upon request.

Inspection

All respirators to be used at the jobsite will be inspected for damage by the employee, prior to use. After they are trained, every employee will be responsible for inspection of their own respirator. The following elements will be inspected;

- Tightness of the connections
- Face piece
- Headbands
- Inhalation valve
- Cartridge or filter fittings
- Signs of deterioration

Any malformation, distortion, missing parts, cracks, etc. in the respirator will cause the equipment to be deemed useless until a qualified technician can properly repair the respirator. If necessary, a new respirator will be issued.

Respirator Type

The type of respirator, and who is required to wear them, will be identified on a task specific level by the HSO, in consultation with the Director HS&E, based on the type of work that will be performed and the potential for exposure to airborne contaminants.

Standard Procedure for Use

All personnel will adhere to the following standard operating procedure for respirator use;

- Carefully inspect the respirator prior to entering potentially contaminated work areas
- Conduct positive and negative pressure leak tests each time the respirator is to be used
- Do not remove the respirator in contaminated work areas
- Wear a respirator with straps inside disposable garment hood (if equipped)

Cleaning and disinfecting

Any reusable respirator must be cleaned after each use. The steps required to clean a respirator after use are;

- Remove the cartridge and headbands
- Disassemble all respirator parts
- Wash all parts, with the exception of the cartridge and headband, in a cleaner-disinfectant solution or use soap and hot water
- Rinse all parts completely in clean, warm water
- Air dry in a clean, sanitary area
- Re-assemble the respirator
- Store the cleaned respirator in a sealed bag.

Storage

Respirators will be stored in a sealed bag to protect against dust, sunlight, extreme temperature, moisture and abrasives. Inhalation holes will be covered with duct tape immediately after leaving a contaminated area. The tape will be left on until the respirator is donned for the next entry into a contaminated area. This tape will prevent any contaminants from being dislodged from the cartridge. Respirators should be stored so that the face piece and exhalation valve will rest in a normal position and function will not be impaired by the elastic setting in an abnormal position. The respirator should not be hung to store or air dried by its straps.

STANDARD OPERATING PROCEDURES (SOPs)

General

- Ensure that all safety equipment and protective clothing is kept clean and well maintained.
- Ensure that all prescription eyeglasses are safety glasses and are compatible with respirators. No contact lenses are allowed at this Project site.
- Ensure that all disposable or reusable gloves are approved by the HSO
- Respirator filters will be changed daily.
- Cover all footwear used onsite with rubber over boots or booties when entering or working in the exclusion zone area or the contamination reduction zone. Boots/booties shall be washed with water and detergent to remove the dirt and contaminated sediment, before leaving the exclusion zone or contamination reduction zone.
- At the end of each day, decontaminate or dispose of all PPE used onsite. The HSO is responsible for ensuring decontamination before PPE reuse.
- Respirators will not be interchanged between workers. Any OSC personnel, subcontractor and/or service personnel unable to use a negative pressure respirator as a result of facial hair or facial abnormality, will not enter or work in an area requiring protection
- All Project personnel will have vision or corrected vision to at least 20/40 in one eye.
- Onsite personnel that are found to be disregarding any provision of this HASP will be barred, at the request of the HSO, from this Project.
- Do not reuse disposable outerwear such as coveralls, gloves and boots. Used disposable outerwear will be removed upon leaving the exclusion zone and placed inside disposable containers that are provided for this sole purpose. The containers will be stored at the Project site, at the designated staging area, and *OSC* will coordinate for the proper disposal of these materials at the completion of the Project.
- When working, immediately replace protective coveralls that have become torn or badly soiled.
- There will be NO eating, drinking, smoking, chewing gum or tobacco in the exclusion zone or contamination reduction zone.
- All personnel must thoroughly wash their hands, face and forearms prior to using the facilities, eating, drinking and smoking.
- NO alcohol, drugs (without prescriptions) or firearms will be allowed onsite at any time.

All personnel who are on medication with a safety-sensitive affect will report it to the HSO, prior to work start-up, The HSO will require a letter from the individual's personal physician stating what limitations, if any; the medication may impose on the individual.

EXCAVATION SAFETY

OSC maintains strict procedure for soil excavations. The safety of all employees during these operations depends on the soil structure and stability, contamination, weather conditions, buried utilities and structures and superimposed loads.

When excavating within a wet, sandy area, or if the area has been backfilled at any time, it is likely to be very unstable. All personnel working in these conditions must be cautious and provide extra sloping, if possible. A change in weather conditions, such has heavy rain or snow, can loosen the soil and increase the risk of a collapse. If the area of excavation is prone to collapse precautions, such as covering the area, should be taken. Heavy equipment or materials should be kept as far away as possible from the excavation area because they can also increase the risk of collapse. All excavated soil should be removed from the rim of the area and contained if possible.

An excavation competent person must be on site anytime entry into an excavation is necessary. Any person entering an excavation must be trained in the hazards and safe work practices of excavations.

In order to eliminate the impact on buried pipelines or cables, before any excavation begins OSC personnel will notify all utility companies to locate their lines. If such a hazard exists, the lines will be carefully marked (potting, hand digging, etc.) prior to the start of the excavation activities.

When deeper than five feet, to prevent collapsing soil the excavation must be sloped, shored or somehow contained before any personnel may enter. A ladder will be provided for employees who are working in depths for more than four feet and spacing between will not exceed 25 feet. The ladder will not be removed until all employees have exited the excavation site.

All excavation sites will be inspected daily by an OSC designated competent person. All activity will cease if the competent person, site superintendent, and/or the HSO find the site hazardous. The competent person will make an inspection any time there is a change in conditions (i.e., weather, water, heavy equipment operation, etc.).

EXTERIOR PRECAUTIONS

OSC requires that all exterior structures (sidewalks, bridges, etc.) be protected and clear of excavated materials. Sidewalks will be shored to carry a load of at least 125 pounds/sf. Planks, which are being used for temporary walkways, will be laid parallel to the length of the walkway and will be fastened together. If possible, guard rails or fences will be erected to protect employees and vehicle traffic from the edge of excavation sites.

LOCKOUT/TAGOUT POLICY

For repairs or maintenance, equipment will be locked out. This procedure ensures the health and safety of all personnel by deactivating any movable, electrical or pressurized equipment. This policy applies to all machinery or equipment that can be moved either by the use of electrical power, hydraulic power, compressed air, steam or energy stored in springs/suspension devices. Damaged tags will be placed on all movable equipment and machinery.

Only project personnel and supervisors are authorized to lockout machinery/equipment. Every employee is responsible for his/her own equipment and nobody else is permitted to remove a lock or tag except the authorized employee. Any violation of this policy is cause for strict disciplinary action.

Lockout Procedures

Lockout devices are used to prevent the accidental re-energizing of equipment.

De-energizing Circuits and Equipment: Disconnect the circuits and equipment, to be worked on, from all electrical sources and release stored energy that could accidentally re-energize equipment.

Application of Locks and Tags: Only authorized personnel are allowed to place a lock and tag on each disconnecting – means used to de-energize the circuits or equipment before the work begins. A lock prevents unauthorized personnel from re-energizing the equipment or circuits. A tag prohibits unauthorized operation of the disconnecting device.

Verification of De-energized Condition of Circuits/Equipment: Prior to work on equipment, OSC requires that a "qualified" employee verify that the equipment is de-energized and cannot be restarted. This is typically done by a visible break in the conductors (i.e. air gap) of one foot or more.

Re-energizing Circuits and Equipment: Before circuits or equipment are re-energized, the following steps must be taken in the following order:

- A "qualified" employee conducts tests and verified that all tools and devices have been removed.
- All exposed employees are warned to stay clear of the circuits and equipment.
- Authorized personnel will remove their own locks and tags.
- The HSO will conduct a visual inspection of the area to be sure all employees are clear of the circuits and equipment.

ELECTRICAL

Only qualified and authorized personnel may work on or around electrical equipment. OSC personnel are not permitted to work on energized lines or equipment. Live or hot work must be contracted to a qualified third party unless specific authorization is given by the OSC President or Director HS&E. The following shall be observed;

- The working space around all electrical equipment will be large enough to permit access to all parts of the equipment. The working space will never be used for the storage of other materials so that immediate access can be gained.
- Only NEC certified electrical tools may be used.
- A ground fault circuit interrupter (GFCI) shall be utilized with all portable electric tools; plugged in at the source and tested prior to use. All electrical equipment shall be properly grounded or guarded (double insulated tools, GFCI).
- Single phase electrical tools must be plugged into properly grounded receptacles.
- The use of extension cords is discouraged. If their use is necessary, extension cords must never be used in traffic areas where they may be a hazard, or where they may become unplugged. Extension cords will always be grounded.
- Any energized electrical equipment, operating at 50 volts or higher, must be protected by a cabinet or other approved enclosure with warning signs that are immediately visible.

FALL PROTECTION

All work form elevated heights > 6 ft. with an open edge to the next lowest level shall be performed as supervised by a competent person. In all cases proper fall protection systems shall be utilized as determined by the competent person for fall protection; personal fall arrest/restraint systems (PFAS/PFRS, guard rails, and warning lines (restricted for unprotected edge work where traditional systems are not practical).

Whenever possible, fall restraint shall be used over fall arrest. OSC observes a policy of 100% tie-off at all times.

INCIDENT PREVENTION PROCEDURES

SAFETY TASK ANALYSIS CARD

The Safety Task Analysis Card (STAC) process is a required components of all OSC projects. The STAC is a pre-printed, bi-fold card that must be completed by each employee at least once per week. The card is used by the employee as a reference tool throughout their work shift. STAC card observations are used to address new work tasks and/or potential hazards.

STAC's are used in addition to Safe Work Permits and/or approved work procedures. The STAC is designed to be an ongoing learning tool. By breaking jobs into small parts, workers can identify hazards and eliminate or control them. It is intended as a tool to help employees make observations and correct fellow employee at risk behaviors.

The STAC must be completed by each employee at least once per week. This is the minimum requirement. Project personnel found participating in or observing risky actions without submitting a properly completed STAC will be re-trained on the need to do so.

Project supervisors and/or the HSO will review submitted STACs with employees during tailgate safety meetings and identify corrective actions.

FIRE PREVENTION AND PROTECTION

The Emergency Response and Contingency Plan provided this HASP will be in effect at all times throughout all phases of work. Included in this Plan are firefighting equipment, alarm systems, the location of the closest fire departments and procedures for handling fire emergencies.
All firefighting equipment will be inspected on a regular basis, maintained in proper working condition and will be located in an accessible place, at the site, at all times.

A fire extinguisher, rated 2A or greater, will be provided for every 3,000 sf of protected building area, or major fraction thereof, on every floor and they will be placed no more than 100 feet from any point within the building. Fire extinguishers will be placed adjacent to stairways in multi-story buildings. This condition is not expected on the project.

SITE HOUSEKEEPING

The following housekeeping guidelines apply at this site:

- All excess material and debris will be kept clear from all working areas.
- Combustible materials will be removed at regular intervals and all wastes will be properly disposed of at frequent intervals.

- Containers will be provided for the collection and separation of all discarded materials and refuse. Covers and identification will be provided for all containers used for flammable or harmful substances.

MECHANICAL EQUIPMENT

The following guidelines apply when dealing with the inspection and operation of all mechanical equipment;

- All vehicles and equipment, used on the site, must be checked at the beginning of each shift to assure that all parts that affect safe operation are in proper working condition and are free from defects. An inspection form must be completed and filed with the HSO.
- No project personnel will be permitted to use any vehicle or equipment that has an obstructed view to the rear, unless there is a reverse signal alarm or a signal man is assigned to help.
- Employees will not work or walk under or between any equipment that had parts which are suspended or held aloft unless/until the parts are substantially blocked to prevent falling and shifting.

HIGH PRESSURE WASHERS

OSC requires that only trained and authorized personnel operate high pressure washers. This policy is intended to protect both *OSC* employees as well as any property where the equipment will be used. The following guidelines apply:

- The lance must always be pointed at the specific work area.
- All personnel will remain at least 25 feet away from the washer; as well as the item being washed.
- Care should be taken to ensure the proper footing of the operator.
- The operator will wear the following personal protective equipment: Hard hat with face shield, goggles, safety boots with metal foot and shin guards, hearing protection, PVC rain or chemical resistant suit and heavy gloves; as well as any additional equipment to protect against chemicals, as needed.
- OSC requires that all operators be trained in the emergency shutdown procedures and general equipment maintenance of high pressure washers.
- Under no circumstances will an operator be allowed to make modifications to a power washer while on a job.

VEHICLE AND EQUIPMENT SAFETY

Only trained and qualified personnel may operate equipment and vehicles. This policy is intended to protect all employees and client properties. It is effect at all times. The guidelines for this policy are as follows;

- Each unit is to be inspected prior to its use on site and then inspected periodically depending on the equipment involved and the manufacturer's specifications.
- No repair work, or refueling, will be done while the vehicles or equipment are in operation. The engine is to be turned off and all buckets, blades, gates or booms must be lowered to the ground, or a substantial support.
- Equipment backup alarms must be operational and audible over the surrounding noise levels. If this is not the case, an assistant must be assigned to the operator and he/she will be required to clear the way.
- Only authorized personnel are permitted to ride in company vehicles and equipment.
- Under no circumstances will an employee be permitted to get on or off a moving vehicle.
- Operators must wear the following PPE: Boots/sturdy work shoes, ear protection devices when the noise level is excessive (see hearing protection section), heavy work gloves. Hardhats and safety eyewear with side shields are required whenever outside of an enclosed cab. Safety glasses and hearing protection are required when cab windows are open.
- The operator must wear seatbelts at all times.
- To ensure the proper visibility all windshields, side windows, mirrors and lights will be cleaned as often as necessary.

Trucks

The following guidelines apply to the operators of OSC's trucks;

- A current driver's license must be carried at all times.
- The driver will check the loaded material to ensure against material loss or shifting during transit.
- All DOT regulations will be followed.
- When towing trailers, safety chains (grade 70) must be in used

Heavy Equipment

OSC has the following requirements for operating front end loaders, excavators, dozers and tractors;

- Prior to their use onsite, the equipment's brakes, cables and hoses must be checked and in good working order.

- When the equipment is moving, all blades, buckets and bowls will be carried close to the ground but high enough to avoid any obstacles on the ground. If not in motion, they must be lowered to the ground or to a substantial support.
- No employees are permitted to ride on a boom, bucket, bowl or any other heavy equipment extension.
- All safety equipment must be properly installed, and in good working condition, before a piece of equipment will be used on this project.

SANITATION

With the exception of mobile crews having transportation readily available, all work sites will have toilets provided that adhere to the following requirements: One toilet for 20 or less employees; one toilet seat and one urinal per 40 employees; if there are 200+ employees, on toilet seat and one urinal per 50 workers.

Adequate washing/showering facilities will be provided on site where there are harmful substances, and they will be in close proximity to the site. An acceptable supply of portable water will be provided onsite, and it will be clearly marked as such. Portable water containers will have tightly sealed tops and a tap.

DAILY INSPECTIONS

The HSO will monitor jobsite hazard mitigation through inspections at the start and throughout each work day. Results of these daily inspections will be recorded on a daily safety log.

Any safety violations will be recorded and corrected by the Project Manager. All observed safety violations will be immediately corrected, explained to the person responsible, and reviewed at the next safety meeting. If an employee has excessive violations of the site safety rules, it will be grounds for disciplinary action which could lead to; termination of OSC personnel or expulsion if an onsite subcontractor personnel.

INCIDENT REPORTING

OSC will prepare and maintain (on site) incident reports that include corrective actions. These reports will be provided to OSC Director HS&E within 24 hours of the incident and as needed. Each incident report will be reviewed by the OSC Director HS&E.

Any occupational incident, which results in the death of one or more employees will be reported to OSHA within 8 hours. The inpatient hospitalization an employee and all amputations or loss of an eye will be reported within 24 hours. All such incidences will be reported by OSC to the nearest

OSHA Area Director during normal business hours or at the National Hotline (800-321-OSHA (6742).

In addition to OSC's internal reporting requirements, Honeywell requires all incidents (adverse events) to be investigated and based on the severity, requires notification of the incident within specified timelines. Adverse events are divided into three tiers: Tier 1 events are the most significant and serious events, followed by Tier 2, which are significant events but not as serious as Tier 1 events, and Tier 3 events are essentially all other events that do not meet the criteria for Tier 1 or Tier 2 events. Tier 1 events are to be reported within 2 hours, Tier 2 events are to be reported within 24 hours, and Tier 3 events are to be reported when possible.

Adverse events include the following:

Tier 1:

- A release to air, water or soil that has an actual or potential off-site adverse environmental impact.
- One or more on-site fatalities;
- Three or more employees, contractors or visitors admitted to a hospital;
- Any off site fatalities, injuries, or harmful exposures resulting from Honeywell products or operations;
- Any security incident that may be immediately dangerous to life or property, including fires, explosions, bomb threats, chemical release, radiation release, release of a biological or chemical agent (aerosolized or gaseous form);
- Suspicious materials, package or letter that poses immediate risk to employees and has been;
- Government representatives alleging or suggesting criminal non-compliance of any kind;
- Receipt or notice of any regulatory agency directive or other type of injunctive device designed to curtail or restrict operations; and,
- Community injuries or diagnoses of illnesses allegedly associated with a company-related incident, event or release to air, water or soil.

Tier 2:

- Employee or contractor lost workday injuries/illnesses.
- Employee, contractor or visitor recordable injuries/illnesses (Criteria: "Honeywell Global Recordkeeping Requirements").
- An environmental excursion that does not also trigger Tier 1 reporting.
- A release to air, water or soil that only narrowly avoided an adverse environmental impact or had the potential to be an excursion.
- Discovery of potential or actual evidence of contaminated groundwater from current or former operations that does not otherwise meet the definition of a Tier 1 Event.
- Suspicious activities in or around Honeywell facilities or processes that may present a potential security risk.

- Allegations of previously unknown health/safety/environmental effects caused by products, processes, emissions or discharges (Reference: Risk Management and Reporting (Pstew-3)).
- Written notification from a governmental agency alleging non-compliance of any kind.
- Proposal or imposition of an HSER fine, penalty or corrective action.
- Receipt of a non-routine request for information from a governmental agency.
- A non-routine regulatory agency inspection.
- Audits (Peer review, Self-assessments, SBU, Third party findings and recommendations)
- Significant community activism or adverse media coverage not associated with an episodic event.
- A product recall imposed by a regulatory agency.
- Transportation-related event that results in Tier 2 impacts.
- Notice of an allegation from a third party or regulatory agency of environmental impacts from operations on current or formerly operated Honeywell facilities.
- Demands, including voluntary agreements, to conduct a site investigation or remedial measures to respond to environmental impacts from operations on current or formerly operated Honeywell facilities.

Tier 3:

The following Tier 3 events shall be entered into the event tracking system within seven (7) calendar days:

- On-site or off-site employee, contractor employee or visitor injuries/illnesses where first-aid treatment or evaluation is provided by a Medical or Para-Medical Professional.
- A regulatory agency inspection (which is not a Tier 1 or Tier 2 Event, and may still be underway) with no notice of fine, penalty or corrective action.

Adverse events must be reported to the PM, construction manager, the RM, as soon as possible following the event. All Tier 1 and Tier 2 adverse events must be investigated, and a written investigation report must be prepared and submitted to the Honeywell Event Reporting System.

MEDICAL SURVEILLANCE

Medical monitoring is required by OSHA as a means of monitoring worker exposure to certain toxic substances under OSHA 29 CFR 1926.65, OSHA's Hazardous Waste Operations and Emergency Response Standard.

MEDICAL EXAMINATIONS

OSC field personnel are provided with a thorough, initial medical examination to assess fitness for the project and to provide baseline health data for subsequent reference. Examinations are conducted by a qualified health care provider and repeated annually (unless abnormal test results,

annual "questionnaire" answers or other problems dictate more frequent observation). A copy of the physician's statement certifying each employee's ability to work at task specific operations will be maintained in the project file by the HSO.

During the medical examination employees will be evaluated for their ability to wear respiratory protection. This evaluation will include, at a minimum, an examination of the cardiopulmonary system; including forced vital capacity (FVC) and forced expiratory volume C 1 second (FEV 1.0). When indicated by the physician, other tests of the respiratory and cardiovascular systems will be performed on the basis of an individual's past history, findings of the above below evaluation, and/or the type of equipment the individual may be required to use.

Following is an example of a baseline yearly medical examination:

Medical Monitoring Protocol				
Exam Components	**Baseline**	**Annual**	**Interim**	**Exit**
Vital Signs	Yes	Yes	Yes	Yes
Vision Screening (Includes Peripheral and Color)	Yes	Yes	Yes	Yes
Urine Drug Screen	Yes	Yes	As needed	As needed
DOT hearing	Yes	Yes	No	Yes
Spirometry	Yes	Yes	Yes	Yes
Chest X-Ray (asbestos work only)	Yes	3	No	3
Review of History	Yes	Yes	Yes	Yes
Physical Exam	Yes	Yes	Yes	Yes
Notes: Only do an X-ray if not done within the last 12 months Only do an X-ray if not done within the last 3 years For medical indications only				

NOTE: Any employee who develops a lost time injury or illness, during the period of this contract, as a result of work in the exclusion zone will be evaluated by the OSC medical consultant. The project supervisor will be provided with a written statement that indicated the employee's fitness and ability to return to work, signed by the medical consultant prior to allowing the employee to re-enter the exclusion zone.

NON-CONTRACTOR PERSONNEL MEDICAL MONITORING

Onsite personnel entering the contaminated reduction zone or exclusion zone, and not employed by OSC, will be required to provide documentation that he/she meets the medical surveillance requirements of this HASP; has been certified fit to enter contaminated area (i.e., lead, mercury, benzene excavation; has the required PPE for this project; and has received their 40 hour OSHA training pursuant to OSHA 29 CFR 1926.65. Documentation will be submitted to the HSO and maintained onsite.

In addition, Honeywell requires drug and alcohol testing prior working at a Honeywell site for certain Contractors. Contractors performing, and those individuals that provide direct supervision (means and methods) of the following work activities shall comply with Honeywell's Substance Abuse and Prevention Policy:

- The use of heavy, construction-type equipment including, but may not be limited to, excavator, cranes of any type, drilling equipment, including geoprobe, compactor, etc.;
- Operations and maintenance at treatment plant-treatment systems facilities;
- Safety sensitive/at-risk work such as, but may not be limited to, confined space entry, lockout/tagout, dredging operations, hot work activities, etc.;
- Other work activities not listed can be assessed on a case-specific basis by the PM of the Alliance/Non-Alliance Firm and/or the certified safety and health professional approving the HASP for such activity to determine applicability to the policy.

The policy prohibits the use, manufacture, sale, possession, or transfer of illegal drugs, alcohol, and controlled substances on Honeywell sites. The Substance Abuse and Prevention Policy is included in Honeywell contracts. Specification 01620 and contract documents contain specific details regarding the requirements of the Substance Abuse and Prevention Policy.

AIR MONITORING:

Air monitoring for excavation personnel shall be conducted by the HSO as determined by the initial hazard exposure assessment. If exposure monitoring (real time and sampling for TWA exposure) demonstrates inhalation of COC's (i.e. lead/metals, BTEX, naphthalene, and H_2S) below the allowable exposure level, personal sampling shall be discontinued. Should real time levels exceed the applicable action level, work will stop until corrective actions are implemented. If corrective actions do not lower readings below the action level, work will again stop until effective controls are in place. Test results shall be reported to all project employees and will be posted. PPE level shall be established by personal and/or air monitoring results accordingly. Medical surveillance is required for all personnel with exposure potential to lead, mercury, and benzene.

Air monitoring shall be conducted for the following excavation work activities as noted in the table below (Excavation/Sheet Driving Air Monitoring Plan). A minimum of two 8 hour samples shall be required for each activity where exposure is a concern for a given COC. Personal air sampling shall be discontinued (with the exception of H_2S monitoring) once elevated exposure levels are not likely.

EXCAVATION/PERSONNEL AIR MONITORING PLAN

Activity	Parameter	Occupation	Monitoring & Sampling

Excavation	Lead/metals	Operator & Laborer	- Personal pump, OSHA ID-125G; 8 Hr. TWA lead and total dust 0500. - Real time dust monitor set to alarm at 160 ug/m^3 dust equivalent to 30 ug/m^3 OSHA Action level (laborer only)
	BTEXN, SVOCs	Laborer	Real time PID set to alarm at 1.5 ppm (laborer only). Additional sampling with tubes will be conducted to verify concentrations.
All other excavation not specified above	Dust	Laborer	Real time dust monitor set to alarm at 5 mg/m^3 OSHA respirable dust PEL (laborer only)

*Monitoring will be conducted as required by OSHA 1926.1153

In addition to monitoring for COCs during excavation, OSC will conduct real time monitoring for oxygen (O2), lower explosive limit (LEL), carbon monoxide (CO), and H2S during excavation entry. Measurements will be taken when an excavation depth reaches 4 feet and will continue until the atmosphere is adequately characterized. Monitoring will be conducted as long as there is reasonable suspicion that elevated levels of these parameters exist.

CONFINED SPACE ENTRY PROCEDURES *(not anticipated for this project)*

The following guidelines outline the minimum acceptable criteria that will be utilized by *OSC* and subcontractor personnel for all confined space entry operations.

All project specific confined space entries will be thoroughly reviewed by the designated HSO. Confined Space Permits shall be issued and approved in conjunction with the Project Manager. Personnel entering and working in confined spaces will be required to adhere to the OSHA Permit-Required Confined Space Standard 29 CFR 1926.1200 and the OSHA General Duty Clause. Affected project personnel are instructed in these OSHA regulations as part of the OSC employee training program.

The HSO will be responsible for reviewing the applicable entry protocol with the field team, prior to confined space entry.

DEFINITIONS

CONFINED SPACE: There are two types of confined spaces: permit required and non-permit required. OSHA's "PRCS Evaluation Procedures and Decision Flow Chart" will be used to evaluate the potential for permit require confined space.

PERMIT REQUIRED CONFINED SPACE (PRCS): The space contains, or has the potential to contain;

- A hazardous atmosphere. A hazardous atmosphere is defined as any space where the oxygen is below 19.5% or above 23.5%, combustible vapors are above 10% LEL, or high toxic concentrations are present which may cause death, incapacitation or an impaired ability to self-rescue.
- The space contains a material that may engulf an entrant.
- The space has an internal configuration that may trap or asphyxiate entrants.
- The space contains any other serious heal, safety or environmental hazard.

NON-PERMIT REQUIRED CONFINED SPACES: OSHA defined a non-permit required confined space as a PRCS in which all serious hazards have been eliminated. Non-permit required confined spaces will be re-evaluated by the HSO using the "PRCS Evaluation Procedure and Decision Flow Chart" (see attached) whenever they or their characteristics change in a way that could lead to reclassification as a PRCS.

PERSONNEL RESPONSIBILITIES

Entry Supervisors

OSC will designate an entry supervisor to oversee the confined space entry and ensure that personnel engaged in PRCS entry operations will comply with this procedure. Entry supervisors will:

- Verify that all tests, specified by the permit, have been conducted and that all procedure and equipment specified by the permit are in place before endorsing the permit and allowing the entry to begin.
- Terminate the entry and cancel the permit when the entry operations covered by the entry permit have been completed, or whenever a condition that is not allowed under the entry permit arises in or near the PRCS.
- Verify that rescue services are available and that the means for summoning them are operable.
- Remove all unauthorized individuals who enter, or attempt to enter, the PRCS during entry operations.
- Determine that the entry operations are consistent with the terms of the entry permit and that acceptable entry conditions are maintained.

Attendants

The entry supervisor will designate a qualified attendant for each PRCS operation. To be qualified, an attendant must know the hazards that authorized entrants may encounter during an entry (including information on the mode, signs and symptoms, and consequences of exposure) and must be aware of the behavioral symptoms of hazard exposure. Attendants will;

- Remain outside the PRCS during entry operations until relieved by another attendant.

- Warn all unauthorized entrants that they must stay clear of the PRCS, or that they must immediately exit if they have entered the PRCS.
- Inform the entry supervisor, if unauthorized personnel have entered the PRCS.
- Continuously maintain an accurate count of entrants in the PRCS and ensure that the means used to identify authorized entrants accurately identifies the entrants.
- Communicate with authorized entrants, as necessary, to monitor entrant status and to alert entrants of the need to evacuate the PRCS.
- Monitor the activities both inside and outside the PRCS.
- Immediately order evacuation of the PRCS if a prohibited condition is detected, the behavioral effects of hazard exposure in an authorized entrant are observed, or a situation outside the PRCS is found that could endanger the authorized entrants; or if the attendant cannot effectively and safely perform his/her duties and responsibilities.
- Perform non-entry rescues, as specified by the Confined Space Entry Permit; summon rescue and other emergency services as soon as it is determined that authorized entrants may need assistance to escape from PRCS hazards.

Attendants will NOT, under any circumstances;

- Monitor more than one occupied PRCS at any given time;
- Perform any duty that might interfere with their primary duty to monitor and protect the authorized entrant; or
- Enter the PRCS for rescue purposes.

Entrants

Authorized PRCS entrants will be identified on each Confined Space Entry Permit. Authorized entrants will;

- Know the hazards, including information on the mode, signs or symptoms, and consequences of exposure.
- Properly use the PPE provided for the PRCS entry.
- Communicate with the attendant, as necessary, so the attendant can monitor entrant status and alert entrants of any need to evacuate the PRCS.
- Evacuate the PRCS and alert the attendant whenever they recognize any warning signs or symptoms of exposure to a dangerous situation; or they detect a prohibited condition; or whenever the attendant or entry supervisor orders the evacuation; or when an evacuation alarm is activated.

TRAINING

All project personnel will be instructed not to enter PRCSs without the proper permit and without following the procedure and practices outline in this SOP and in the Confined Space Entry Permit. Personnel, who are required to enter a PRCS, or act as an attendant or entry supervisor, will be

trained to acquire the understanding, knowledge and skills necessary for the safe performance of their assigned responsibilities and duties.

Entrants will receive training on;

- The means and methods used to communicate with attendants; as well as the means attendants will use to notify them of emergencies.
- The operation of any specialized equipment that is expected to be used, including monitoring and rescue equipment.
- Evacuation signals and procedures; as well as the need for entrants to notify the attendant and evacuate the PRCS if they detect any dangerous conditions.

Attendants will receive training on:

- The procedures for monitoring inside and outside the PRCS and recognizing the conditions that might be hazardous to entrants;
- Procedures for communicating with entrants;
- Procedures for evacuating entrants from the PRCS and when evacuation is required;
- Procedures for controlling access to the PRCS;
- Their responsibility to remain outside the PRCS during entry, unless they are relieved by another attendant, and
- Non-entry rescue procedures.

Entry Supervisors will receive training on;

- Verifying that the Confined Space Entry Permit has been completed properly;
- Procedures for verifying that all tests specified by the Permit have been conducted;
- Requirements for verifying that all the procedures and equipment specified by the Permit are in place before allowing entry to begin;
- Procedures for determining if conditions are acceptable for entry;
- Authorizing entry operations, and
- Terminating entry.

All training will be conducted:

- Before the employee is first assigned confined space duties (initial training);
- Before a change in assigned duties;
- Whenever there is a change in permit space operations that presents a hazard about which employee has not previously been trained, and
- Whenever project management comment, involved regulatory officials, or the project engineer has reason to believe that there are inadequacies in the knowledge or use of these procedures.

When complete, training will be certified by the instructor. The certification will list the names of the personnel presenting and receiving training and the dates of training. Training certification

documentation will be maintained as part of the Project file kept at the site and in the individual's personnel files in the home office.

PRCS ENTRY PROCEDURE

Atmospheric Testing

Before an employee enters any confined space, the entry supervisor will test the internal atmosphere with a calibrated, direct reading instrument to determine if acceptable entry conditions exist for the following conditions, in the given order:

	Condition	Acceptable Parameter(s)
A.	Oxygen Content	Above 19.5% and Below 23.5%
B.	Flammable Gases and Vapors	Less than 10% LEL
C.	Potential Toxic Air Contaminants	Below Action Levels for PPE

Continuous systems which cannot be isolated (i.e. sewers) or activities which generate significant airborne contaminants (i.e. welding) will be continuously monitored during entry, unless forced mechanical ventilation is used and has been shown to maintain an acceptable atmosphere.

Entry

The HSO will use the "PRCS Evaluation Procedures and Decision Flow Chart" to verify the presence of a PRCS. If it is determined that a PRCS does exist, the HSO will review the confined space entry procedures with entry personnel; post OSHA required danger signs at the entrances to the PRCS and notify Project personnel of the PRCS location(s); notify offsite emergency response services of the PRCS; and prepare a Confined Space Entry Permit.

Confined Space Permit

The entry supervisor will be responsible for completing the Confined Space Entry Permit. All items on the Permit must be completed. The entry supervisor will verify that all entry personnel are aware of the specific hazards that are associated with the PRCS; that all necessary safety equipment and materials are in place; that all emergency response procedures are in place; and that the pre-entry air monitoring results indicate acceptable entry conditions, before signing the permit.

Pre-entry Briefing

The entry supervisor will conduct a pre-entry briefing with the attendants and authorized entrants to discuss the requirements of the Permit and to ensure that all involved personnel understand their

responsibilities and the specific hazards associated with the PRCS. A pre-entry briefing will be conducted, for each attendant and entrant, prior to entry and whenever new hazards are identified.

Entry Authorization

The entry supervisor will sign the Confined Space Entry Permit after the Permit has been completed, all safety equipment is in place, air monitoring results are acceptable, the pre-entry briefing has been conducted and the rescue procedures have been established. Once the permit has been signed:

- Entrants will wear all necessary safety and rescue equipment;
- The Permit will be posted at , or near, the PRCS entrance, and
- Entry procedures will begin.

Permit Exit and Cancellation

Each Entry Permit will be valid for one shift only. Expired and canceled Permits will be returned to the Site Superintendent who will file them with the Project documents. Permits will be canceled if;

- A new hazard is identified or encountered;
- An entrant is seriously injured and requires evacuation and/or rescue; or if
- A change in the scope of work required new activities which may create previously unanticipated hazards that could cause serious death or injury.

RESCUE/EMERGENCY RESPONSE

Offsite Rescue and Emergency Services

Offsite rescue and emergency service personnel will be informed by the HSO of the hazards they may confront when called to the jobsite to perform services. These services will be identifies and notified prior to any entry. Entry will not be performed if emergency rescue services are not available. The rescue/emergency service personnel will be provided access to all permit spaces from which the rescue may be necessary, so that the emergency responders can develop appropriate rescue plans and conduct rescue operations.

Non-entry Rescue

Non-entry rescues, retrieval systems or methods will be used whenever an authorized entrant enters a PRCS, unless the retrieval equipment would increase the overall risk of entry or would not contribute to the rescue of the entrant.

Each authorized entrant will use a chest or full body harness, with a retrieval line attached at the center of the entrant's back near shoulder level or above the entrant's head. Retrieval lines will be attached to a mechanical device or a fixed point outside the Permit space, in such a manner that

rescues can begin as soon as the rescuer becomes aware of the necessity. The mechanical device will be ready to retrieve personnel from vertical PRCSs more than five feet deep.

DECONTAMINATION PROCEDURES

Decontamination of equipment and personnel will be performed as necessary to limit the potential migration of contaminants outside the project limits. All equipment and personnel will be decontaminated before leaving the property.

Personnel and equipment decontamination procedures to be employed when exiting contaminated work areas at this site are summarized in the following subsections.

PERSONNEL HYGENE AND DECONTAMINATION

All project personnel will minimize contact with contaminants in order to minimize the need for extensive decontamination. All personnel will be made aware of any personal habit that may allow contaminants into or onto their body. All personnel will check that regularly worn PPE (i.e. hardhats and liners, eye protection, etc.) is clean and in good condition. Any products used for personal consumption are prohibited in any work area. Break areas will be limited to specific areas where eating, drinking, smoking, etc. and the storage of these materials will be allowed.

No PPE will be removed from the designated contaminated work area without proper decontamination or disposal. All personnel leaving the contaminated work area will pass through a contamination reduction zoned where they will remove their PPE and thoroughly wash/rinse any exposed skin with water and biodegradable soap before leaving the Project site.

Personnel decontamination equipment consists of two wash tubs (boot wash), trash cans with liners (for disposable PPE), 5 gallon buckets (glove wash/rinse and respirator wash/sanitize/rinse), brushes, water supply and detergent. Boot, glove and respirator cleaning and rinsing solutions will be changed at least daily.

A standard, typical personnel decontamination sequence is presented below.

- Step 1: Scrape the gross contamination from boots and outer gloves. Wash them using soap in a water solution and rinse with water into a designated container in the contamination reduction zone.
- Step 2: Remove the tap from and around boots an outer gloves and deposit in a collection drum (if disposable) or store on a rack (if reusable). Remove the over boots and outer gloves and place in a collection drum (if disposable) or wash and place on a rack (if reusable).
- Step 3: Remove respirator cartridge and place in a collection drum.
- Step 4: Remove disposable coveralls and place in a collection drum. Remove boots and store in an appropriate location. Remove disposable inner gloves and dispose of them in a collection drum.

- Step 5: Remove hardhat and safety glasses: Decontaminate as necessary (wash with sanitizing solution [MSA sanitizing solution or equivalent], rinse with potable water and allow to dry at the end of each day).
- Step 6: Remove respirator, if used, and deposit in a plastic liner. Avoid touching face with fingers. Respirators will be washed in a sanitizing solution (MSA sanitizer or equivalent), rinsed with portable water and allowed to air dry at the end of each day.
- Step 7: Thoroughly wash and rinse any exposed skin with water and biodegradable soap using bucket 1. Rinse in bucket 2. Re-rinse in bucket 3. Shower and launder all personal clothing as soon as possible upon completing daily activities.

Personnel hygiene, hand and face washing, following decontamination will take place in the project support area.

EQUIPMENT DECONTAMINATION

The HSO will be responsible for inspecting decontaminated vehicles, equipment and material contaminated work areas, to ensure proper decontamination. The users and HSO will verify that each piece of equipment utilized in the exclusion zone has been properly decontaminated.

Decontamination personnel will be required to use Modified Level D PPE as specified in this HASP. The standard operating procedure for the use of high pressure washers, also provided, will be strictly followed to prevent injury.

HEAVY EQUIPMENT DECONTAMINATION

As a general practice, equipment, such as excavators, bulldozers, etc. will remain within the work zone for the duration of the excavation activities. This ensures the minimization of the potential migration of contaminants outside the project limits. In addition, the sequence of excavation has been designed to avoid the movement of machinery and personnel over areas within the work zones that have been excavated.

Generally heavy equipment, and large materials used in potentially contaminated areas equipment, will be decontaminated as outlined below;

- Conduct gross removal of solids at point use.
- Degrease as necessary.
- Move to the equipment decontamination pad for decontamination via pressure washing.
- Collect and handle resultant liquids/solids.

TOOLS AND SMALL EQUIPMENT DECONTAMINATION

Tools and smaller equipment that may have come in contact with potentially contaminated materials will be decontaminated using the procedures outlined below;

- Flush and wipe components to remove debris and other gross contamination.
- Clean with potable water and non-phosphate detergent (i.e. Alconox) using a brush or high pressure washer, as necessary, to remove particulate matter and surface films.
- Rinse thoroughly with potable water.
- Allow to air dry for as long as possible.

NON-DISPOSABLE SAMPLING EQUIPMENT

Non-disposable sampling equipment that may have come into contact with potentially contaminated materials will be decontaminated prior to collecting each sample as follows;

- Clean with potable water and non-phosphate detergent using a brush, if necessary, to remove all visible foreign matter.
- Rinse thoroughly with potable water.
- Rinse thoroughly with de-ionized water.
- Visually inspect the openings and treads for solid materials.
- Allow to air dry as long as possible on a clean polyethylene sheet or aluminum foil.

DISPOSAL OF DECONTAMINATION WASTES

All equipment and solvents used for decontamination will be decontaminated or disposed of properly. All aqueous liquids generated in the personnel and equipment decontamination process will be collected, characterized and appropriately disposed of. All disposable PPR will be containerized in drums and properly disposed of.

MANAGEMENT OF DECONTAMINATION WATERS

Collected decontamination wash water will be pumped, on an as needed basis, using the OSC water management system. Details of operation and construction of this system are under separate cover.

EMERGENCY EQUIPMENT and FIRST AID REQUIREMENTS

Emergency and first aid equipment to be maintained onsite will include the following;

- Approved, portable, emergency eye wash units in accordance with ANSI Standard Z358.1
- At least one industrial first aid kit will be provided and maintained at an easily accessible, uncontaminated location chosen by the HSO. Additional first aid kits will be provided as needed
- First aid and CPR kit locations will be specifically marked by the HSO and stocked with adequate water and other supplies necessary to cleanse and decontaminate burns, wounds or lesions.
- At least one first aid qualified employees, certified by the American Red Cross will be onsite at all times.
- 10#A: B: C type dry chemical fire extinguishers will be provided at all project site locations where flammable materials present a fire risk. Mobile equipment will be equipped with 2 pound extinguishers.

Agencies and medical facilities that need to be contacted in the event of an onsite emergency, as well as directions to the nearest hospital, are identified at the beginning of this HASP. The tables stating the emergency contact information and hospital location will be posted in a prominent location(s) onsite.

If a site worker becomes injured or ill, Red Cross/American Heart Association recommended first aid procedures shall be followed. First aid, or other appropriate initial reactions, will be provided by the certified first aid technician that is closest to the incident.

NOTE: When protective clothing has been grossly contaminated during an incident, contaminants may be transferred to the treatment personnel or the wearer and cause injuries. Unless severe medical problems have occurred simultaneously with splashes, protective clothing should be washed off as quickly as possible and removed. If the worker can be moved, he/she will be taken to the personnel decontamination station where decontamination procedures, additional first aid or preparation for transport to the hospital will be accomplished. In the event that the victim could not be decontaminated, the rescue service provider must be notified of the situation.

If the injury to the worker is of a chemical nature, the procedures listed below are to be followed;

Eye Exposure: If contaminated solids or liquids get into the eyes, wash eyes immediately using large amounts of water while lifting the lower and upper eyelids occasionally. Wash for at least 15 minutes. Obtain medical attention.
Skin Exposure: If contaminated solids or liquids get on the skin, promptly wash the contaminated skin using soap and water. Immediately obtain medical attention.
Respiratory Exposure: Immediately move the victim to fresh air. Obtain immediate medical attention.
Ingestion Exposure: Identify what contaminant was swallowed. Follow the appropriate procedure described in the SDS and obtain medical attention as soon as possible.

NOTE: Any person who is transported to the hospital for treatment related to an exposure injury will take with them the appropriate information (i.e. SDSs) on the Chemical to which he/she has been exposed. SDSs for known or suspected Chemicals to exist onsite will be stored in *OSC*'s Project field office and maintained by the HSO.

EMERGENCY RESPONSE and CONTINGENCY PLAN *(also provided under separate cover)*

The following Emergency Response and Contingency Plan includes the following:

- Preventative measures;
- Personnel training and regular HS&E meetings conducted to reduce the likelihood of incidents;
- Mitigation measures to limit the scope of any incident, and
- Contingency actions to respond to and remedy the effects of incidents.

REPORTING AN EMERGENCY

Controllable: No need to contact 911 for this type of incident. Project personnel will immediately notify the HSO of the incident.

Minor: The HSO will immediately notify the Director HS&E and state the following:

- Name
- Location of emergency (SA6 N)
- Describe problem

The HSO and Director will confer and determine the appropriate action. The HSO will then;

- Notify the project superintendent who will then notify Project Manager
- Initiate preparation of an incident investigation and corrective actions

Major: The HSO will immediately notify the Site Superintendent stating the same points that are listed under a minor injury. However, with a major emergency the HSO must state that this is a major emergency. Concurrently the HSO must direct that 911 be called if not already done so. The Site Superintendent will react as follows:

- Call OSC's Corporate Director HS&E
- Call fire department (if necessary)
- Call police
- Call Project Manager

PRE-PLANNING

All work will be coordinated with the Project Manager and Director of Health and Safety. Arrangements for emergency services will be made prior to initiating onsite operations. Emergency response procedures will be covered as part of the project personnel's training. This training will include, but not be limited to;

- Emergency chain of command;
- Communication methods and signals;

- Location of phones and emergency numbers;
- Use of emergency equipment;
- Evacuation and emergency procedures;
- Offsite support;
- Site-specific hazards;
- Decontamination procedures;
- Standard operating procedures, and
- Location and use of the first aid equipment

EMERGENCY CHAIN OF COMMAND

In the event of an emergency, personnel will immediately notify the HSO, using available communications. The HSO will assess the situation and take appropriate action which can include (depending on the circumstances) notifying the project manager, site supervisor, and OSC Director HS&E and Owner's representative of the situation; initiating engineering controls (i.e. dust suppression, ventilation, etc.); ceasing all work; ordering evacuation of the work zone; implementing emergency altering and response procedures; requesting emergency medical treatment; and/or administering first aid.

EMERGENCY RESPONSE TEAMS

The emergency response team will consist of individuals with the following responsibilities;

- Initial Incident Manager
- Coordinator
- Safety Officer

FUNCTIONS OF REPONSE TEAM MEMBERS

The OSC Site Superintendent will serve as the Initial Incident Manager. Responsibilities are as follows;

- Manage response activities
- Be responsible for the overall direction of the staff
- Arrange for notification of the appropriate individuals and agencies
- Act as the liaison with governmental officials, during an emergency
- Act to minimize public contact
- Coordinate the notification of neighboring businesses and residents with local authorities
- Characterize the extent of contamination and notify the proper authorities

The Coordinator position will be filled by the construction manager who will;

- Coordinate with the police authorities, with respect to notification of neighbors
- Arrange and provide for the equipment and materials needed to cope with emergency conditions. This equipment will include showers, eye wash stations, firefighting equipment capable of extinguishing chemical fires, first aid supplies and construction equipment
- Direct onsite questions from the public to the appropriate individuals

OSC's HSO will also act as the incident Safety Officer as follows;

- Be responsible for the safety of personnel at the scene
- Recommend the proper PPR and equipment
- Test downwind areas for levels of chemicals

HSO Role in Emergencies

In the event of a spill or release, the HSO will attempt to characterize any human exposure to project personnel or others. He will also attempt to determine the levels of exposure, when feasible. The HSO will consult with the physician to determine if any health effects are to be expected. If appropriate, medical treatments will be recommended.

COMMUNICATION METHODS AND SIGNALS

Evacuation

Emergency escape routes will be designated by the HSO for use in situations where rapid egress from the exclusion zone is required. Project personnel will be notified of the specific evacuation routes and re-assembly areas during the daily toolbox HS&E meetings. The re-assembly area will be determined based on current wind conditions and indicated on a site map. The map will be posted in an area readily accessible to workers in the different project areas.

An emergency evacuation alarm (air or vehicle horn) will be kept onsite at all times. The audible evacuation signal will be short bursts on the horn (one second burst followed by one second interval) and will be repeated until the site is evacuated. After the work area is cleared, Project personnel will meet at an upwind re-assembly facility area that the HSO will designate. The emergency alarm will be sounded in the event of any serious problems or emergency (fire, medical) that requires the assistance of personnel or the evacuation of the construction team. In situations where an onsite emergency results in evacuation, personnel will not be permitted to re-enter until;

- The conditions resulting in the emergency have been corrected;
- The hazards have been reassessed;
- The HASP has been reviewed, and
- Project personnel have been briefed on any change in the HASP.

Emergency Services and Vehicle Access

The emergency telephone numbers, listed in the Contact Information section of this HASP, will be posted at each project site telephone. Directions to the hospital will also be posted at this location.

In the event that emergency service vehicles need access to a location that is blocked by onsite operations, those operations (equipment, materials, etc.) will be immediately moved to allow vehicle access. The emergency crews will be quickly briefed as to the site conditions and hazards by the HSO. All vehicles and personnel will be decontaminated prior to leaving the site.

WEATHER

In the event of severe weather (lightning, high winds, etc.), the HSO will notify project personnel. As the storm approaches, all work will stop, loose object will be secured and site personnel will take shelter at a location pre-arranged by the HSO. After the severe weather has passed, and prior to work startup, the HSO will inspect the site for hazards.

Lightning – Any visual sighting of lightning will result in stopping outside work activities. Work will not commence until 30 minutes after the last observed strike.

High Winds – Winds higher than 30 mph will cause all exterior hoisting and lifting to cease. Crane operators have the authority to stop lifts at lower wind speeds based on their discretion.

Project Tornado Shelter - To be determined with initial hazard exposure assessments and site mobilization. All reasonable efforts should be made to access this location in the event of a tornado. Recognizing imminent tornado signs include seeing an unusually dark sky, possibly with some green or yellow clouds. You may hear a roaring or rumbling sound like a train, or a whistling sound like a jet. Large hail may also be falling. You may be able to see funnels, or they may be hidden by rain or hail.

Listen to the radio for tornado warnings during bad thunderstorms. If a tornado warning is issued, don't panic. Instead, listen and look. Quickly but calmly follow directions for getting to shelter. Take cover. Indoors you should go down into the basement and crouch down under the stairs, away from windows. Do not take an elevator. If you can't get to a basement, go into a closet or bathroom and pull a mattress over you or sit underneath a sturdy piece of furniture on the ground floor near the center of the building. Pull your knees up under you and protect your head with your hands. A bad place to be in a tornado is in a building with a regular freestanding roof such as a gymnasium, arena, auditorium, church or shopping mall. If you are caught in such a building, take cover under something sturdy. More than half of tornado deaths occur in mobile homes. If a tornado threatens, get out and go to a building with a good foundation, or lay down in a ditch away from vehicles and other objects.

If you are driving, get to a shelter, lie down in a ditch or seek cover up under the girders of an overpass or bridge. Stay as close to the ground as you can. Protect your head and duck flying debris. Stay away from metal and electrical equipment because lightning accompanies tornadoes.

If you have time before the tornado strikes, secure objects such as garbage cans and lawn furniture which can injure people. While most tornado damage is a result of the violent winds, most injuries and deaths actually result from flying debris.

SPILL CONTAINMENT PROCEDURES

The purpose of this section is two-fold; to prevent and control accidental discharge of polluting materials to surface soils and waterways (or groundwater); and to minimize and abate the hazards to human health and the environment from hazardous waste releases to air, soil or surface water. These procedures will be reviewed with project personnel prior to startup and thereafter as necessary during regular weekly HS&E meetings and daily briefings.

EMERGENCY NUMBERS
The names and phone numbers of emergency services and offices to be contacted in the event of a spill, or any other onsite emergency, is provided in the Contact Information portion located at the beginning of this HASP. These phone numbers will be posted by the HSO in prominent positions throughout the Project site.

DEFINITIONS
For the purposes of this plan, spoils are defined as any material that is accidentally or intentionally leaked, pumped, poured, dumped or emitted onto the ground, surface water, groundwater or air. All spilled material will be considered hazardous; cleaned up following the established spill response procedures; and reported as required.

Spills will be categorized as: Priority 1 or Priority 2.

Priority 1 Spills: Result in a significant release of contamination into the air, or onto the ground, outside the exclusion zone.

Priority 2 Spills: Result in minor spill, less than five (5) gallons and not reportable, which can be easily cleaned up.

POTENTIAL SOURCES AND PREVENTATIVE MEASURES

The contracted work has potential spill sources. These include, but are not limited to:

Potential Spill Source	Preventative Measure(S)
Transporting waste material to selected on and offsite disposal facilities	In general OSC will be require to verify that all transportation vehicles used in support of this contract are equipped with the appropriate spill response equipment, and that the drivers have received the proper spill response training and maintain all their require federal and state licenses and certifications. Loads will be secured, tied down and covered, and transport vehicles will be checked prior to release from the site.
Re-fueling onsite equipment	*OSC* will prohibit the long term storing of diesel fuel. *OSC* will limit the amount of fuel kept onsite to only that required for weekly equipment usage.
General spill prevention requirements	Easily accessible spill response stations will be set up containing absorbent pillows, floor dry, shovels and brushes to be used in the event of a spill. The location will be known to all project personnel.

SPILL RESPONSE PROCEDURES

Initial Containment and Response

In the event of a spill, the following initial containment and response procedure must be implemented immediately.

- **Administer first aid to injured person(s).** Any employee that observes a spill will act immediately to remove and /or protect the injured person from a life threatening situation. First aid and/or decontamination procedure will be implemented as appropriate.
- **Warn other persons and/or vehicles of the hazard.** Personnel will act to prevent any unsuspecting persons from coming in contact with the spilled materials by alerting nearby people and by obtaining assistance of other personnel who are familiar with spill control and clean up training.
- **Stop the spill at the source, if possible.** Without taking unnecessary risks, personnel will attempt to stop the spill at the source. This may involve activities such as up-righting a drum, closing a valve or temporarily sealing a hole with a plug. *OSC* personnel will not expend more than a brief effort, prior to notifying the HSO.
- **Notify the HSO.** Using available onsite communication systems, or other rapid communication procedures, the HSO will be notified of the spill, including information on the material spilled, quality, personnel injuries and immediate life threatening hazards. The HSO will notify the representative and emergency contacts immediately (See Emergency Contact List).

NOTE: If a flammable liquid is involved in the spill, remove all ignition sources and monitor for explosive conditions with an LEL meter during cleanup. Also, remove any surrounding materials that might chemically react with the spill materials.

Spill Containment

The HSO will make a rapid assessment of any spill at the site; apply the appropriate HS&E considerations to the use of PPE in the spill release zone; and direct primary containment measures. Depending on the nature of the spill, primary containment measures may include, but are not limited to;

- Constructing a temporary containment berm to control the horizontal flow of the spill using absorbent pads, booms, sandbags, sand and/or other inert materials
- Placing drums under the leak to collect the spilling material before it flows onto the ground
- Digging a sump, installing a polyethylene liner and diverting the spilled material to the sump
- Transferring the material from its original container to another container

Spills that occur between the project site and the offsite disposal facility will be initially contained by the driver using on-board spill response equipment.

Spill Cleanup

The HSO and Project Manager will develop an incident-specific spill clean-up plan for Priority 1 spills that will take into consideration the associated hazards, quantity of spilled material, disposal methods and costs. The incident specific spill clean-up plan will be reviewed for acceptance by the representative and/or other Federal, State or Local oversight personnel. Once approved, the spill clean-up plan will be implemented under the direct supervision of the OSC site superintendent.

Generally, all visually detectable spills, leaks or releases of fuel oil will be collected and cleaned up using absorbent pads, booms, sandbags, sand and/or other inert materials as practicable using the response procedures outline below.

Spill Type	Response
Waste oil on the ground	Contain the spill and excavate the visually contaminated soils. Containerize, sample for classification purposes and dispose offsite.
Building/paved surfaces	Contain the spill. Power wash the contaminated are(s). Collect and containerize the resultant wastewater for onsite treatment.
Vehicle	Power wash the vehicle. Collect, contain and treat the resultant decontamination fluids.
Waste from truck spilled on roadway	Contain the spilled material. Collect, containerize and remove the spilled material. Sample for waste classification purposes. Dispose of material offsite.

Post-spill Inspection

The HSO and site superintendent will jointly inspect the spill site to determine that the spill has been cleaned up to the satisfaction of all involved parties.

Reporting

In the event of a spill incident, the HSO will immediately contact the site superintendent; initiate the emergency procedure steps that are provided in this HASP, and complete a Spill Report for submittal to the project Representative.

OSC will be responsible for reporting any Priority 1 spills immediately following the incident. A written report will be submitted within seven days after the telephone call reporting the incident. The written report will include the item spilled, quantity, identification and manifest numbers, whether the amount spilled is EPA/State/District reportable, exact location of occurrence, containment procedures used, anticipated clean-up and disposal procedures and disposal of spill residue.

HEAT/COLD STRESS

HEAT

The HSO will visually monitor the Project personnel for signs of heat overexposure. The HSO will be responsible for implementing the following program when the ambient air temperature exceeds 85°F (heat stress monitoring).

Symptoms

Weakness, dizziness, fainting, nausea, headaches, cool and clammy skin, profuse sweating, slurred speech, weak pulse and dilated pupils.

Procedure

Personnel who wear PPE allow their body heat to be accumulated with and elevation of the body temperature. Heat, heat exhaustion and heat stroke can be experienced which, if not remedied, can threaten health and life. A current edition of the American Red Cross Standard First Aid book or equivalent will be maintained onsite at all times so that the HSO and all personnel will be able to recognize the symptoms of heat emergency and be capable of controlling them.

When PPE is worn (especially level C) the suggested guidelines for ambient temperature and maximum wear time per excursion are as follows:

Ambient Temperature (°F)	Maximum Wear Time Per Excursion (Minutes)
Above 90	15
85 – 90	30
80 – 85	60
70 – 80	90
60 – 70	120
50 – 60	180

One method for measuring the effectiveness of employees' rest-recovery regime is by monitoring their heart as follows:

- During a 3 minute period, count the pulse rate for the last 30 seconds of the first minute, the last 30 seconds of the second minute and the last 30 seconds of the third minute.
- Double that count.
- If the recovery rate during the last 30 seconds of the first minute is at 110 beats per minute or less and the deceleration between the first, second and third minute is at least 10 beats/minute, the work recovery regime is acceptable. If the employee's rate is above the specified, longer rest period is required, and accompanied by and increased intake of fluids.

COLD

Whole body protection will be provided to all Project personnel who will have prolonged exposure to cold air. The HSO will use the equivalent chill temperature when determining the combined cooling effect of wind and low temperatures on exposed skin or when determining the proper clothing insulation requirements. The following clothing will be used as deemed necessary, by the HSO.

Appropriate underclothing (wool or other cloth)

Outer coats that repel wind and moisture

Face, head and ear coverings

Extra pairs of socks

Insulated safety boots

Wool glove liners or wind and water repellant gloves

Personnel who are working in continuous cold weather are required to warm themselves on a regular basis in the onsite trailer. Drinks will be provided to personnel to prevent dehydration. The HSO will follow the work practices and recommendations for cold stress threshold limit values as stated by the current edition of the Threshold Limit Values for Chemical Substances and Physical Agents and Biological Exposure Indices by the American Conference of Governmental Industrial Hygienists, or equivalent cold stress prevention methods.

LOGS, REPORTS and RECORDKEEPING

The following reports will be prepared and submitted as indicated below. Copies of the field logs, permits and forms required for this Project are provided in Attachment 1.

Type	Frequency
AHA Pre-plan for High Risk Work	Prior to start of work
Employee Daily Safety Brief Site Log	Daily, minimum
Air Monitoring Reports	As required but within 2 days of receipt of lab results. Daily for real-time monitoring
Incident Report Spill Report	As required, within 24 hours

The above logs and reports will be prepared by the HSO, or the designated representative, at the frequency noted above. Completed logs and reports will be maintained stored on site in the project field office.

Hot Work Permit Procedures (Welding, Cutting, Open Flame Work & Sparking)

OSC will follow specific procedures to assure all hot work activities, welding, burning, cutting, sparking and other ignition source work is completed safely without incident (no fires, injuries or property damage). All hot work shall require an approved hot work permit issued by the OSC HSO prior to commencing work. The hot work permit shall define the minimum acceptable procedures and precautions that shall be taken for all phases of the hot work; prior to start of work, as well as during and after hot work is completed. A permit shall be issued daily for each specific location, type of hot work, protective measures, date, time duration and final completion time. Hot work permits will be available for review. Completed and signed permits shall be returned to the HSO at the end of the work day. Copies of completed permits shall be maintained in the OSC field office for review.

Certification of Equipment Operators & Rigging

All heavy equipment operators, including crane and rigging personnel, working on site will be certified through OSC's in-house program. Training requirements for certification are as follows;

Heavy Equipment Operators

- Formal classroom with written qualification
- Determination of proficiency by an OSC certified operator
- On-the-job mentoring for 40-hour minimum under a competent person

The formal classroom and mentoring may be adjusted based on an operator's previous experience. In addition to the OSC certification, operators must obtain state-specific licenses/permits.

Crane Operators

- Formal classroom with written qualification
- Determination of proficiency by an OSC certified operator
- On-the-job mentoring for 80-hour minimum under a competent person

The formal classroom and mentoring may be adjusted based on an operator's previous experience. In addition to the OSC certification, operators must obtain state-specific licenses/permits.

Riggers

- Formal training as provided in OSHA 1926.1401-1425 & ANSI A10.42 with written qualification
- Determination of proficiency by an OSC certified rigger
- On-the-job mentoring for an 8-hour minimum under a competent person

ATTACHMENT I: Forms

ATTACHMENT II RESERVED: Site-Specific Activity Hazard Analysis

(To be inserted as developed and revised)

ATTACHMENT III: Safety Data Sheets

ATTACHMENT IV RESERVED: Site Safety Audits

(To be inserted as developed and revised)